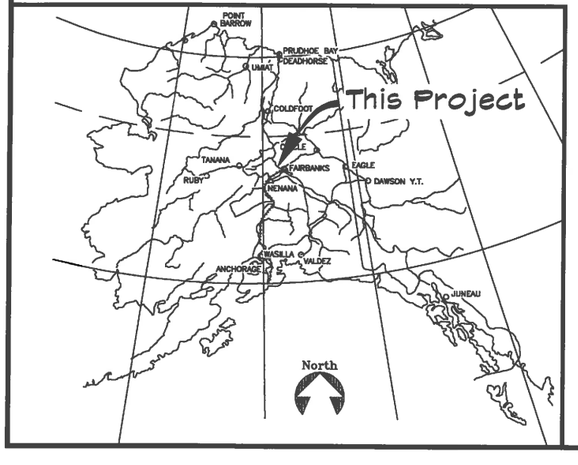
STATE OF ALASKA
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF PARKS
AND
OUTDOOR RECREATION

STANDARD CREEK MATERIAL SITE &
FORTUNE CREEK BRIDGE REPLACEMENT

PROJECT NO.
39030-1

In Cooperation with the Division of Forestry

Vicinity Map



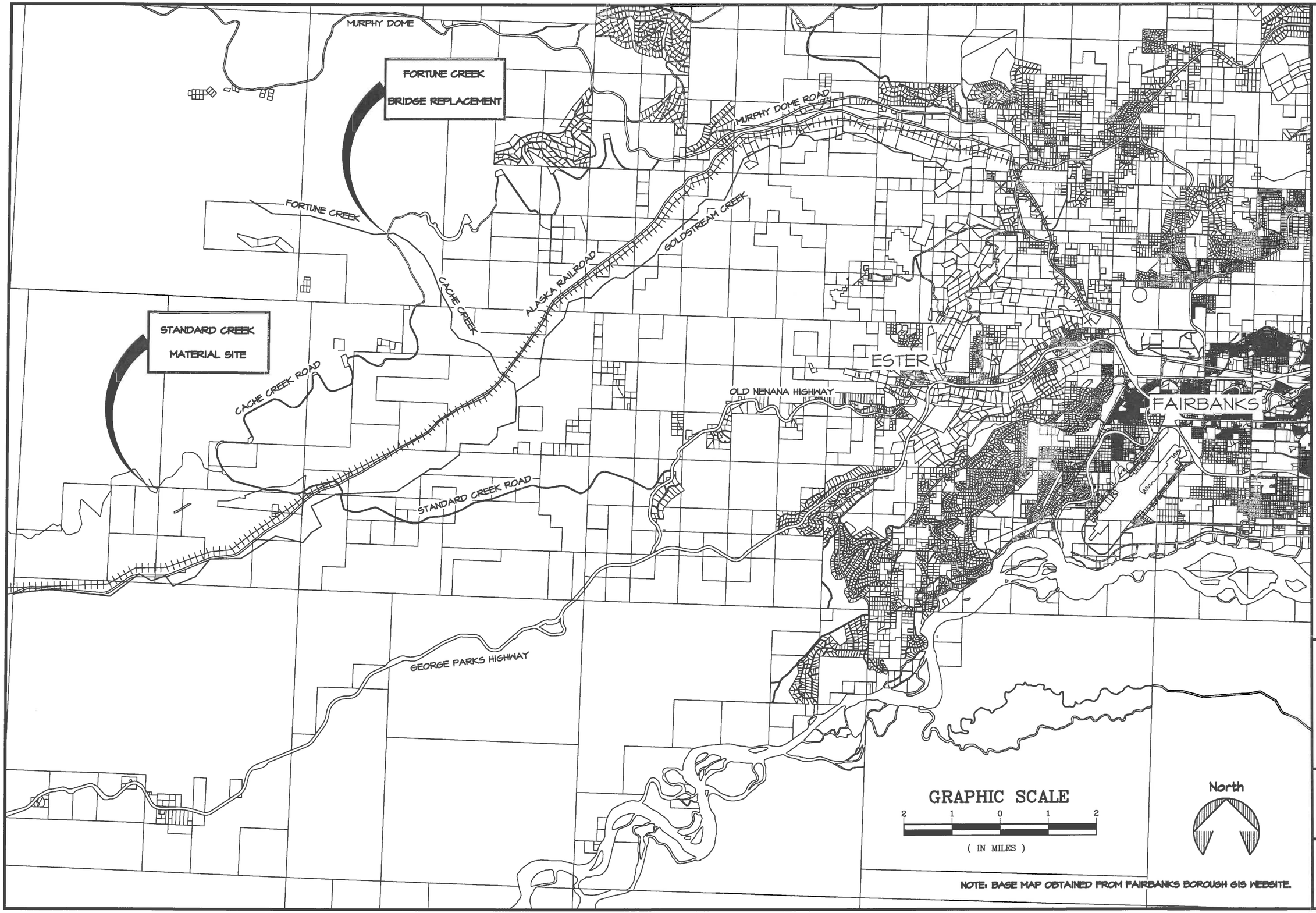
INDEX

The following Division of Forestry standard drawings apply to this project: A-02.00, B-02.00, E-01.00, E-02.00, H01.00, H-02.00, N-01.00, N-02.00, N-03.00, N-04.00, N-05.00, S-01.00

STATE OF ALASKA
Department of Natural Resources
Division of Forestry

Approved:

Dean Y. Jon — 5.24.16
Division of Forestry Representative — Date



STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

VICINITY MAP

STANDARD CREEK MATERIAL SITE &
FORTUNE CREEK BRIDGE REPLACEMENT
PROJECT No. 39030-1

ALASKA STATE PARKS

PREPARED: JSG
DRAWN: JSG
REVIEWED: ES
DATE: 2/19/16

SHEET 2 OF 3 SHEETS

ESTIMATE OF QUANTITIES			
ITEM NO.	ITEM DESCRIPTION	UNIT	QUANTITY
202(1)	REMOVAL OF STRUCTURES AND OBSTRUCTIONS	L.S.	ALL REQ'D
203(5A)	ROCK FILL, SELECTED MATERIAL	C.Y.	4,800
203(19)	MATERIAL SOURCE DEVELOPMENT	L.S.	ALL REQ'D
302(3)	SUBGRADE MODIFICATION	STATION	37
504(3)	MODULAR BRIDGE	L.S.	ALL REQ'D
517(1)	PREFABRICATED MODULAR BIN WALL	L.S.	ALL REQ'D
603(17-18)	18 INCH PIPE	L.F.	250
611(1)	RIPRAP, CLASS II	C.Y.	49
615(1)	STANDARD SIGN	S.F.	49.5
618(1)	SEEDING	ACRE	1.00
630(1)	GEOTEXTILE, SEPARATION	S.Y.	7,800
640(1)	MOBILIZATION AND DEMOBILIZATION	L.S.	ALL REQ'D
641(1)	EROSION, SEDIMENT, AND POLLUTION CONTROL ADMINISTRATION	L.S.	ALL REQ'D
641(2)	TEMPORARY EROSION, SEDIMENT, AND POLLUTION CONTROL	C.S.	ALL REQ'D
641(6)	DESCP PRICE ADJUSTMENT	C.S.	ALL REQ'D
642(1)	CONSTRUCTION SURVEYING	L.S.	ALL REQ'D
643(2)	TRAFFIC MAINTENANCE	L.S.	ALL REQ'D

ITEM 615(1) STANDARD SIGN									
SIGN NO.	FACING	TYPE	LEGEND	SIZE (INxIN)	AREA (S.F.)	THICKNESS (IN.)	SIGN POST DATA		
							TYPE	SIZE (IN)	NO.
S1	NORTH	W5-3		30x30	6.25	0.125	PT	2.5x2.5	1
S2	SOUTH	"		"	"	"	"	"	"
S3	NORTH	OM-3L		12x36	3	0.125	PT	2.5x2.5	1
S4	SOUTH	"		"	"	"	"	"	"
S5	NORTH	OM-3R		12x36	3	0.125	PT	2.5x2.5	1
S6	SOUTH	"		"	"	"	"	"	"
S7	NORTH	I-3		36x50	12.5	0.125	PT	2.5x2.5	1
S8	SOUTH	"		"	"	"	"	"	"
TOTALS				49.5			PT	2.5x2.5	8

ITEM NO. 603(17-18) 18 INCH CSP		
QTY.	DESCRIPTION	LOCATION / COMMENTS
30 L.F.	18"Φ CULVERT W/ END SECTIONS (2 EACH)	SEE APPENDIX A - DETAIL MAP
30 L.F.	18"Φ CULVERT W/ END SECTIONS (2 EACH)	SEE APPENDIX A - DETAIL MAP
30 L.F.	18"Φ CULVERT W/ END SECTIONS (2 EACH)	SEE APPENDIX A - DETAIL MAP
30 L.F.	18"Φ CULVERT W/ END SECTIONS (2 EACH)	SEE APPENDIX A - DETAIL MAP
30 L.F.	18"Φ CULVERT W/ END SECTIONS (2 EACH)	SEE APPENDIX A - DETAIL MAP
30 L.F.	18"Φ CULVERT W/ END SECTIONS (2 EACH)	SEE APPENDIX A - DETAIL MAP
30 L.F.	18"Φ CULVERT W/ END SECTIONS (2 EACH)	SEE APPENDIX A - DETAIL MAP
30 L.F.	18"Φ CULVERT W/ END SECTIONS (2 EACH)	STANDARD CR. ROAD MP. 2.2

Jacob Scott Gondek
CE - 12818
5/24/16.

STATE OF ALASKA DEPARTMENT OF NATURAL RESOURCES

STANDARD CREEK MATERIAL SITE &
FORTUNE CREEK BRIDGE REPLACEMENT
PROJECT No. 39030-1

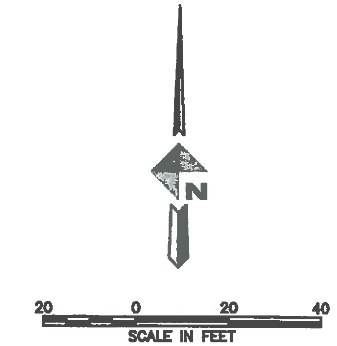
LEGEND, ABBREVIATIONS,
ESTIMATE OF QUANTITIES,
& SUMMARY TABLES

ALASKA STATE PARKS

PREPARED: SDB
DRAWN: SDB
REVIEWED: JSG
DATE: 05/18/2016

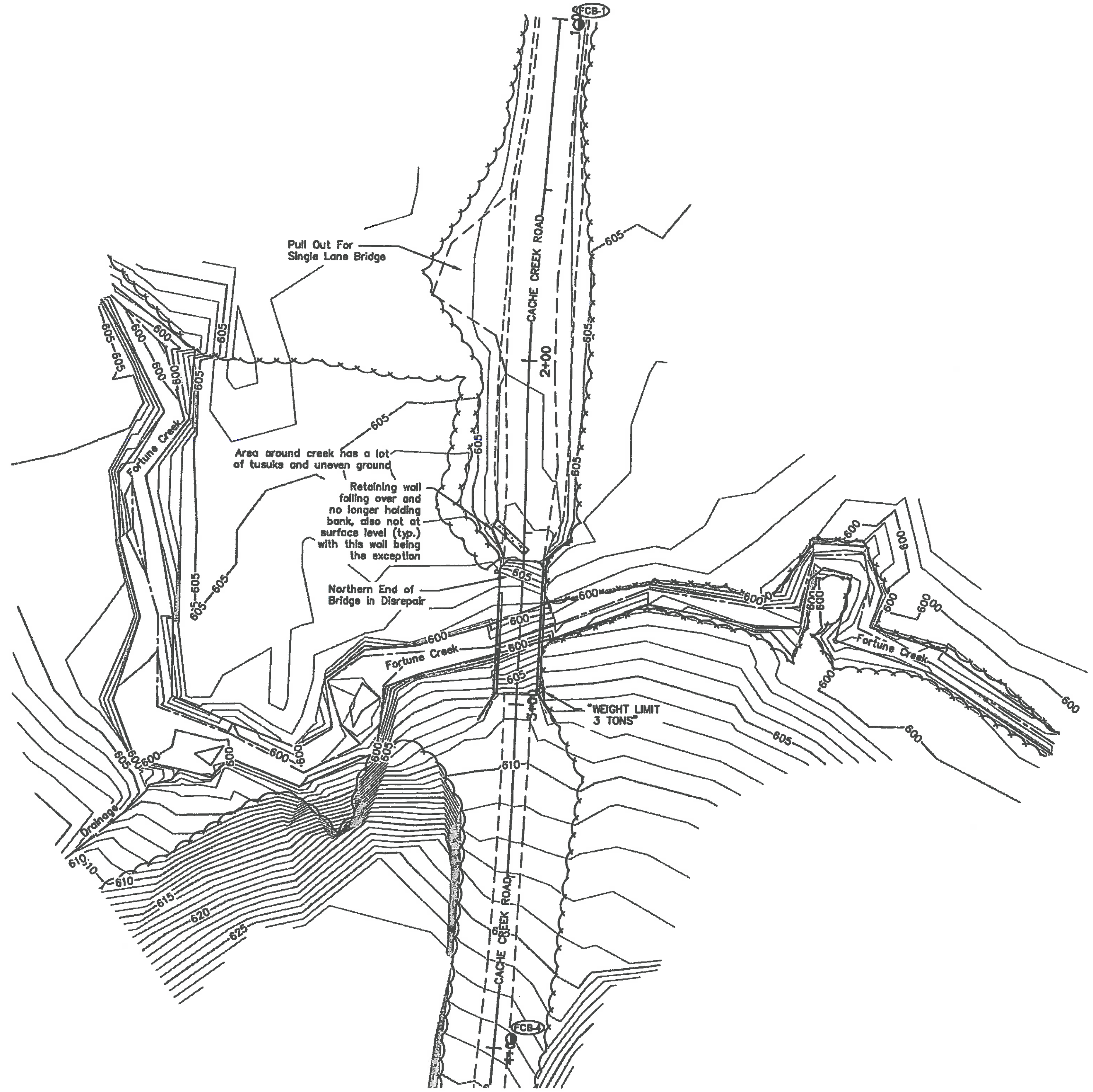
SHEET
3
OF 03 SHEETS

DOWLHKM FILE No: XXX-XX



LEGEND

- SURVEY MONUMENT
- CONTROL POINT NUMBER
- SIGN POST
- SIGN
- JERSEY BARRIER
- WOODEN RETAINING WALL
- BRIDGE W/ RAILS
- ROAD SHOULDER
- EDGE OF DIRT ROAD
- EDGE OF WATER
- THALWEG OF CREEK
- EDGE OF TREES/BUSHES
- MAJOR CONTOUR
- MINOR CONTOUR



SURVEY CONTROL NOTES

1. All dimensions and coordinates shown are in U.S. Survey Feet unless otherwise noted.
2. Existing Conditions are based on a DOWL Topographic Survey performed in May & June 2015.
3. Property boundaries and title research was not performed as part of this survey, a thorough examination of land title is needed to ensure all easements, restrictions and rights are depicted.
4. The contractor shall verify all survey control before use.
5. It is the Contractor's responsibility to work around all monuments without disturbing the monument.
6. Whether listed or not, ALL monuments or property markers, corners, or accessories, which will be disturbed or buried, shall be referenced and re-established in their original position (A.S. 19.10.260) and recorded (A.S. 34.65.0440).

HORIZONTAL CONTROL

Coordinates are Alaska State Plane (ASP) Zone 4, NAD83(2011)(Epoch 2010.0000) in U.S. Feet as determined by NGS OPUS Utility. The Basis of Coordinates is control point FCB-1, a 2" aluminum cap on 5/8" rebar having a value of N 3,981,279.68 and E 1,889,802.84. Bearings are grid bearings as determined by GPS observations recorded June 1, 2015 using Leica dual frequency GPS receivers and high-resolution geoid model (Geoid-12B).

The Fortune Creek Site Combined Scale Factor is 0.99994031. To convert ground distances to Alaska State Plane Zone 4 (ASPCZ4) grid distances, multiply by a combined scale factor of 0.99994031. To convert ASPZ4 grid distances to ground distances, multiply by a combined scale factor of 100000000/99994031.

VERTICAL CONTROL

Elevations are NAVD88 Orthometric heights expressed in US Feet. The Basis of Elevations is control point "FCB-4" , a 2" aluminum cap on 5/8" rebar having a value of 618.21 feet. The NAVD 88 orthometric height for this point was determined by GPS observations recorded June 1, 2015, using Leica dual frequency GPS receivers and a high-resolution geoid model (Geoid-12B).

SURVEY CONTROL POINTS

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
FCB-1	3981279.68	1889802.84	606.13	ALCAP
FCB-4	3980984.45	1889785.79	618.21	ALCAP

C:\Civil 3D Projects\21\90048-01\Civil\SC14-FORTUNE-CREEK-90048-01.dwg PLOT DATE 2016-2-1 11:52 SAVED DATE 2016-02-01 10:51 USER: jmirium

REV.	DATE	REVISIONS DESCRIPTION	BY

STATE OF ALASKA — 49th — J. William Stoll LS 12041 — REGISTERED PROFESSIONAL LAND SURVEYOR

DOWL
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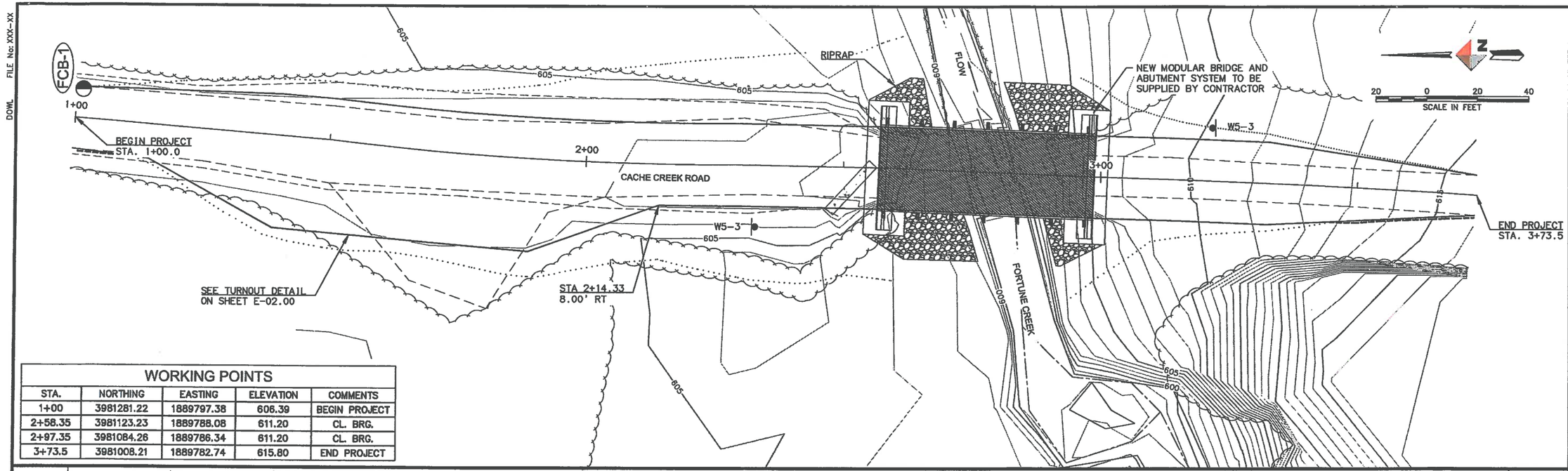
BRIDGE DESIGN - FORTUNE CREEK
FORTUNE CREEK AT CACHE CREEK ROAD
SURVEY CONTROL

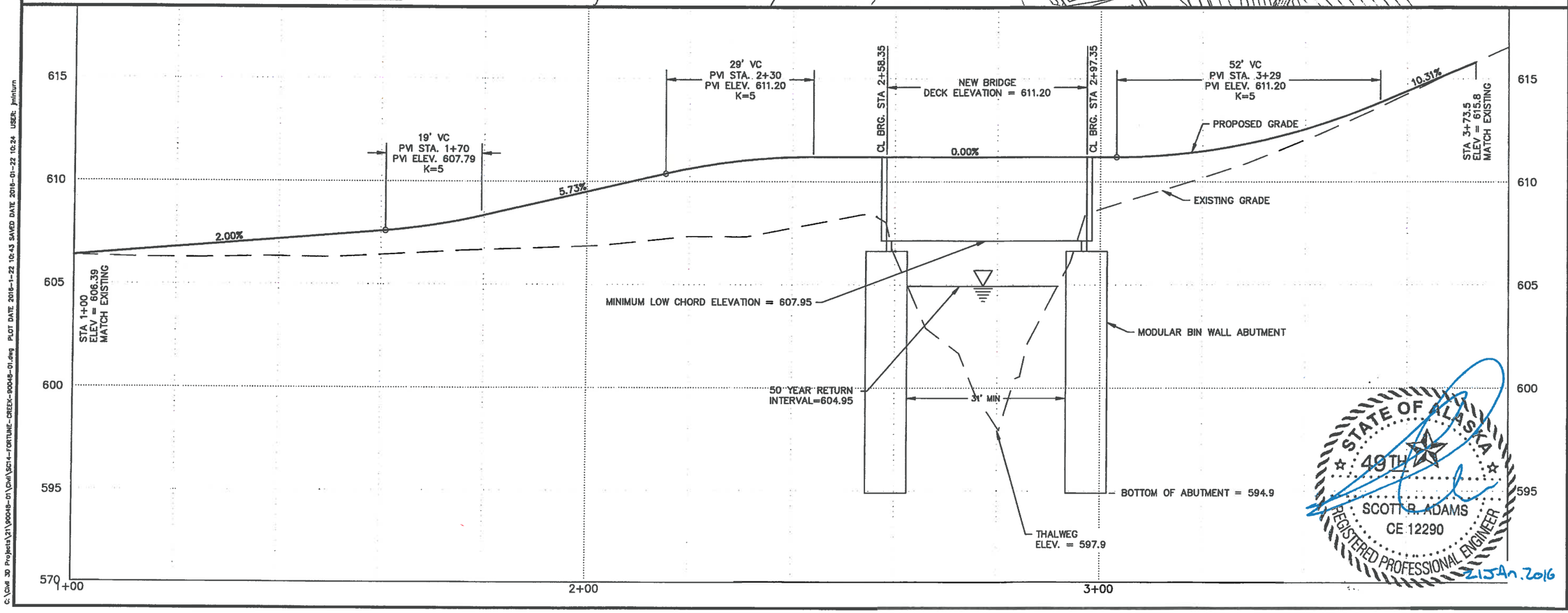
SECTION 28, T1N, R4W, FAIRBANKS MERIDIAN, ALASKA

PROJECT	1621.90048.01
DATE	01/15/2016
FIELDBOOK	2558

SHEET
B1 OF B9



WORKING POINTS				
STA.	NORTHING	EASTING	ELEVATION	COMMENTS
1+00	3981281.22	1889797.38	606.39	BEGIN PROJECT
2+58.35	3981123.23	1889788.08	611.20	CL. BRG.
2+97.35	3981084.26	1889786.34	611.20	CL. BRG.
3+73.5	3981008.21	1889782.74	615.80	END PROJECT



REVISIONS			
REV	DATE	DESCRIPTION	BY

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FORTUNE CREEK BRIDGE REPLACEMENT
FORTUNE CREEK, FAIRBANKS, ALASKA
PLAN AND PROFILE

SECTION 28, T1N, R4W, FAIRBANKS MERIDIAN, ALASKA

PROJECT 90048.01
DATE 01/15/2016

SHEET
B2 OF B9

DOWL FILE No: XXX-XX

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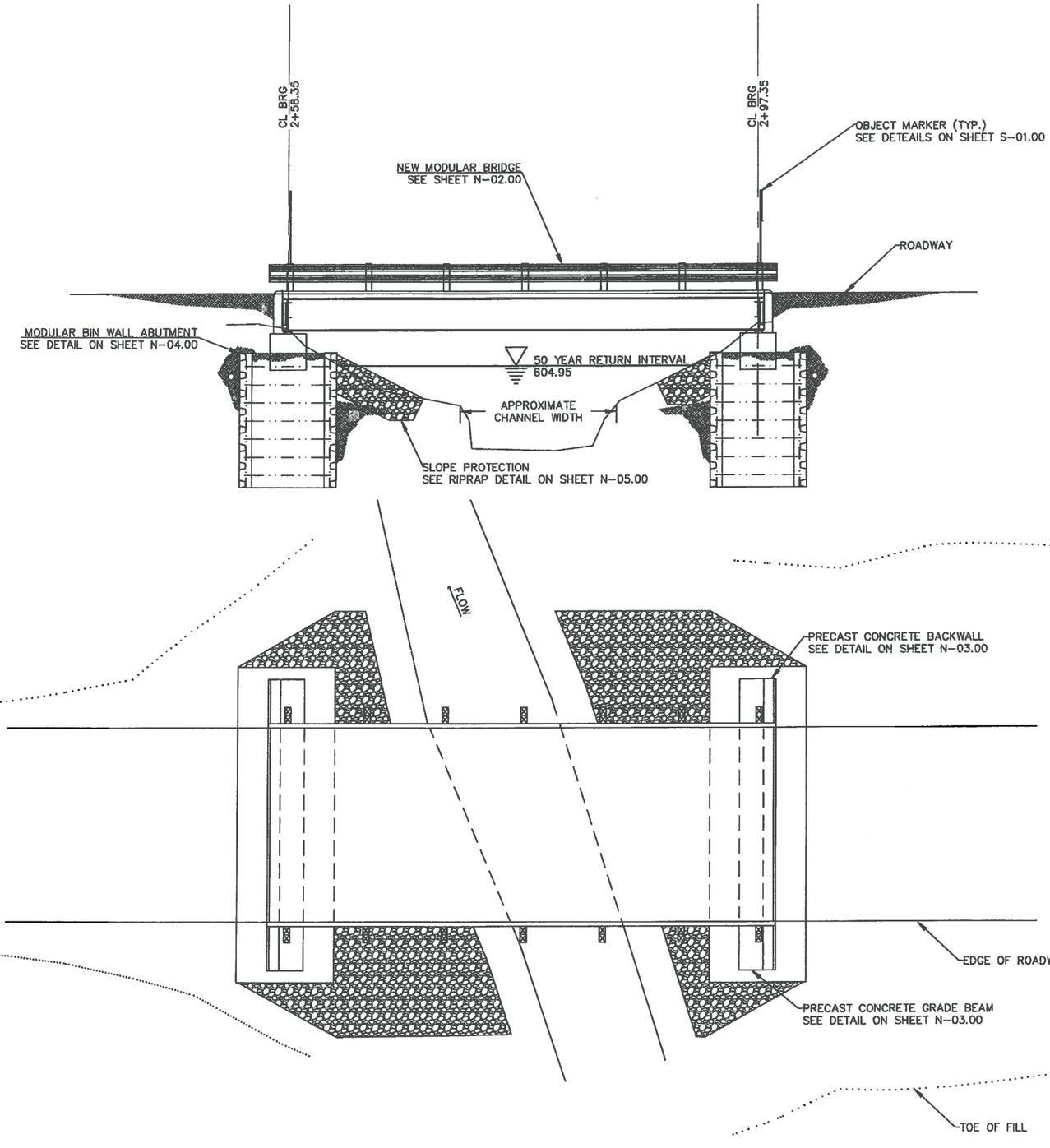
GENERAL NOTES

1. THE SCOPE OF WORK FOR THIS PROJECT INCLUDES: REMOVAL AND DISPOSAL OF AN EXISTING 40' LONG STEEL RAILROAD CAR BRIDGE; PROVIDING A MODULAR STEEL BRIDGE ON MODULAR BIN WALL ABUTMENTS; EARTHWORK AS SHOWN IN THE DESIGN DRAWINGS; ASSOCIATED SIGNAGE; TRAFFIC PROTECTION AND CONTROL; IMPLEMENTING BEST MANAGEMENT PRACTICES FOR EROSION CONTROL; AND ANY ANCILLARY WORK REQUIRED BY THE OWNER FOR AN IN-PLACE FULLY FUNCTIONAL BRIDGE AND APPROACHES.
2. STANDARDS DETAILS FROM THE DIVISION OF FORESTRY ARE INCLUDED IN THIS PROJECT.
3. SURVEY INFORMATION WAS PROVIDED BY DOWL. THE CONTRACTOR IS RESPONSIBLE FOR DETERMINING THE EXACT LOCATION OF ALL SITE FEATURES. IF THE CONTRACTOR SHOULD ENCOUNTER CONDITIONS OTHER THAN THOSE SHOWN ON THE PLANS, CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER'S REPRESENTATIVE.
4. PLANS MAY NOT SHOW ALL EXISTING UTILITIES ON SITE. THE CONTRACTOR IS RESPONSIBLE FOR LOCATING ALL EXISTING UTILITIES PRIOR TO CONSTRUCTION.
5. COORDINATE CONSTRUCTION STAGING AND MOBILIZATION AREAS AND ACTIVITIES WITH OWNER'S REPRESENTATIVE.
6. STATIONING IS ALONG CENTERLINE OF ROADWAY.
7. VERIFY ELEVATIONS OF ALL PROPOSED STRUCTURES PRIOR TO CONSTRUCTION. REPORT ANY DISCREPANCIES FROM PLANS IMMEDIATELY TO OWNER'S REPRESENTATIVE.
8. BRIDGE DESIGN LOADS: SEE SHEET N-01.00 OF THE DEPARTMENT OF NATURAL RESOURCES, DIVISION OF FORESTRY STANDARD DRAWINGS.
9. ALL VEGETATION IN THE AREAS NOT AFFECTED BY WORK SHALL BE PRESERVED AND PROTECTED BY THE CONTRACTOR. RESEED ALL DISTURBED AREAS.
10. EXCAVATION AND BACKFILL:
    A. REMOVE ALL ORGANIC OR OVER SATURATED SOFT MATERIAL, WHICH CANNOT BE COMPACTED.



REVISIONS

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DOWL

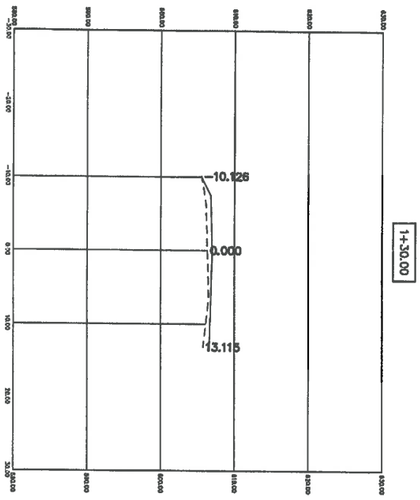
BRIDGE DESIGN - FORTUNE CREEK
FORTUNE CREEK AT CACHE CREEK ROAD
DETAILS

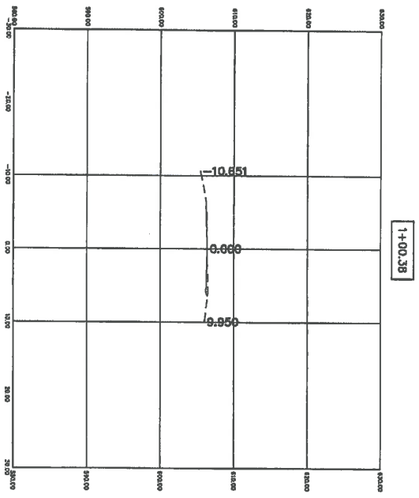
SECTION 28, T1N, R4W, FAIRBANKS MERIDIAN, ALASKA

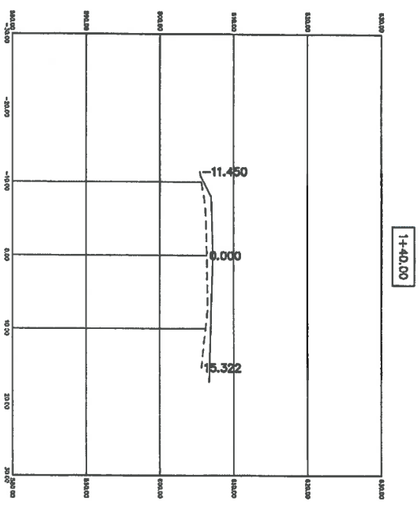
STATE OF ALASKA 49TH
SCOTT R. ADAMS
CE 12290
REGISTERED PROFESSIONAL ENGINEER
21 JAN 2016

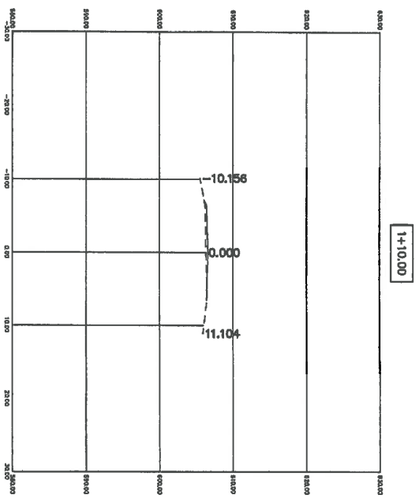
PROJECT	1521.90048.01
DATE	01/15/2016
FIELDBOOK	2558

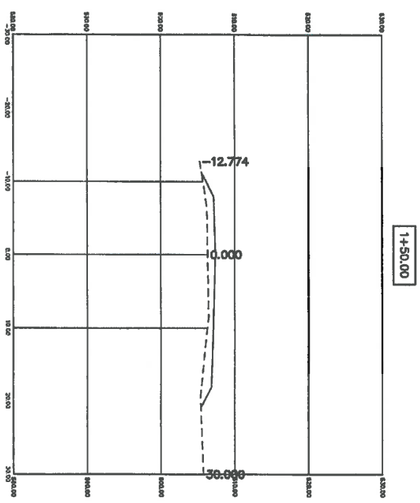
SHEET B3 OF B9

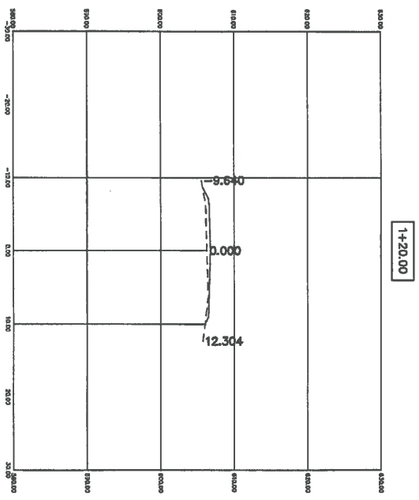












PROJECT	1821.90048.01	BRIDGE DESIGN - FORTUNE CREEK FORTUNE CREEK AT CACHE CREEK ROAD SECTIONS SECTION 28, T1N, R4W, FAIRBANKS MERIDIAN, ALASKA	DOWL WWW.DOWL.COM
DATE	01/15/2016		
FIELDBOOK	2556		

SHEET B4 OF B9

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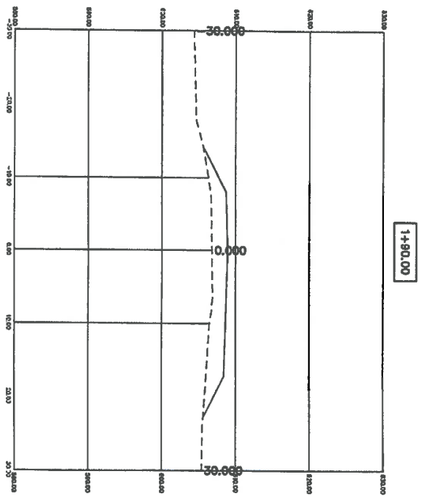

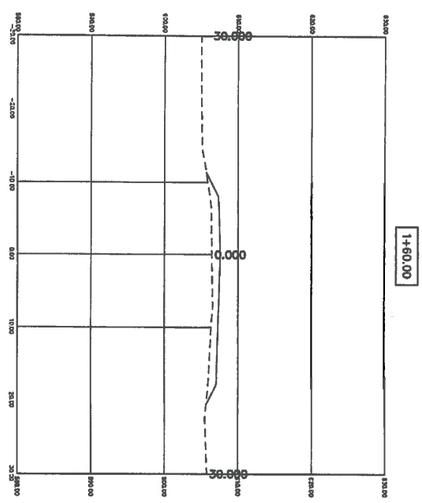

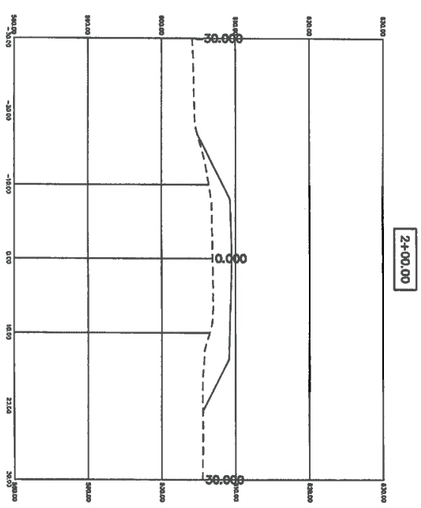

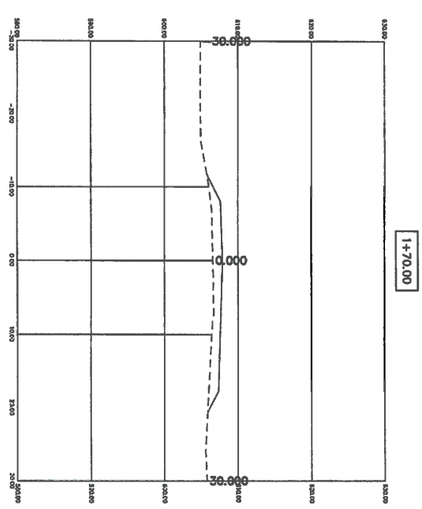

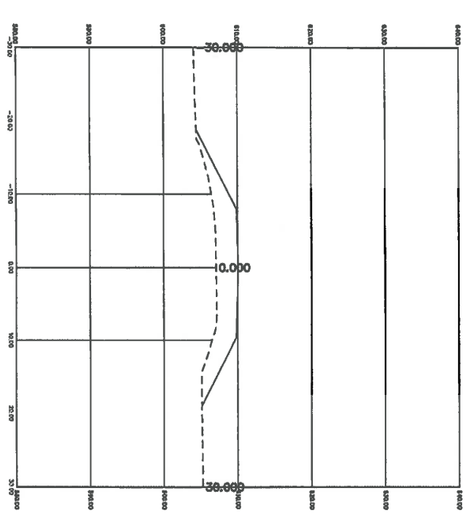

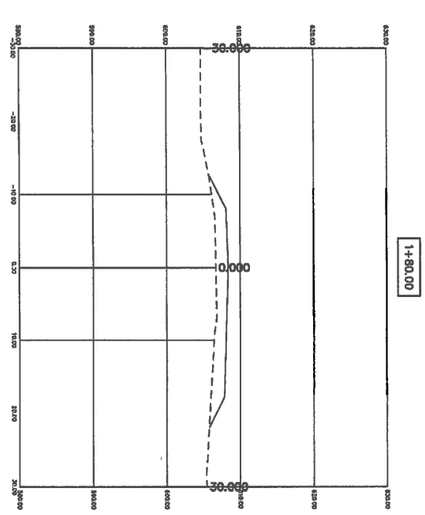

BRIDGE DESIGN - FORTUNE CREEK
FORTUNE CREEK AT CACHE CREEK ROAD
SECTIONS

SECTION 28, T1N, R4W, FAIRBANKS MERIDIAN, ALASKA

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PROJECT 1821.90048.01
DATE 01/15/2016
FIELDBOOK 2558

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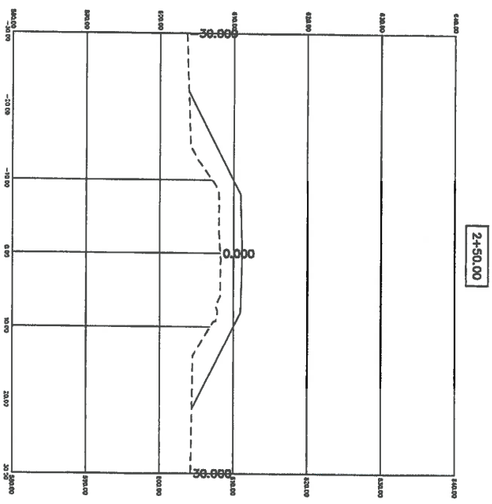
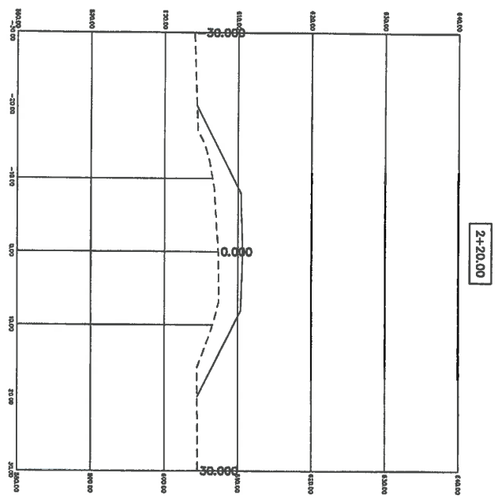
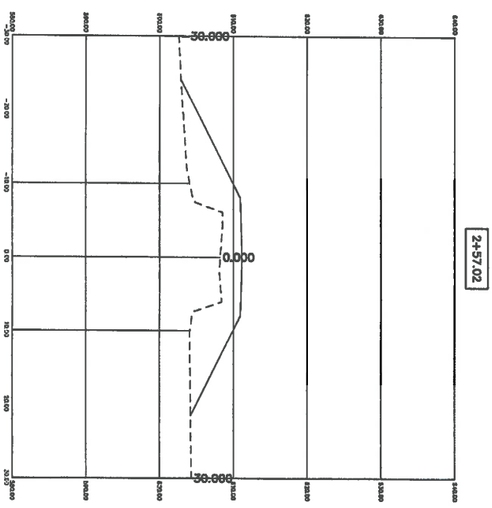
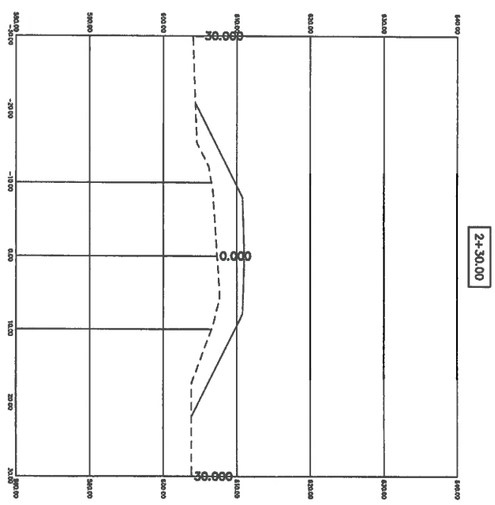
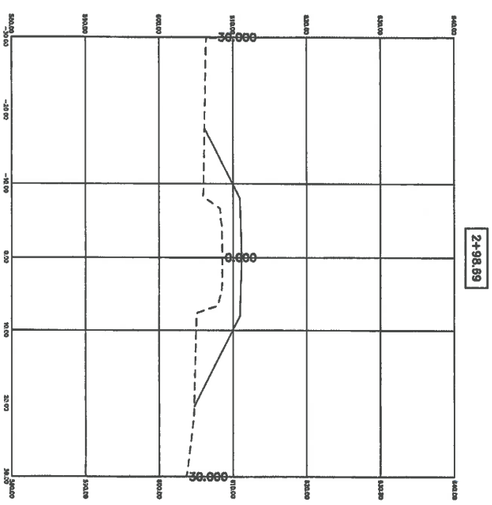
SHEET B5 OF B9

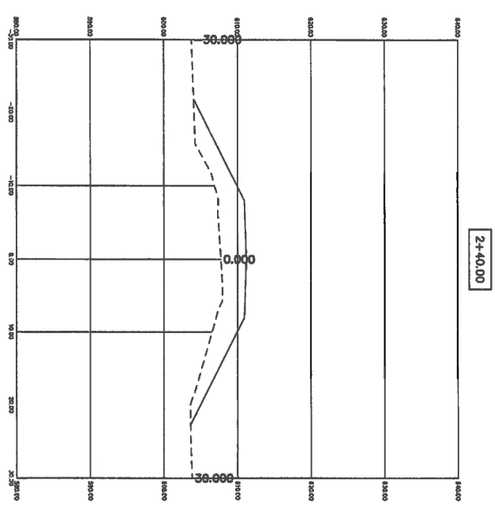












BRIDGE DESIGN - FORTUNE CREEK
FORTUNE CREEK AT CACHE CREEK ROAD
SECTIONS

SECTION 28, T1N, R4W, FAIRBANKS MERIDIAN, ALASKA

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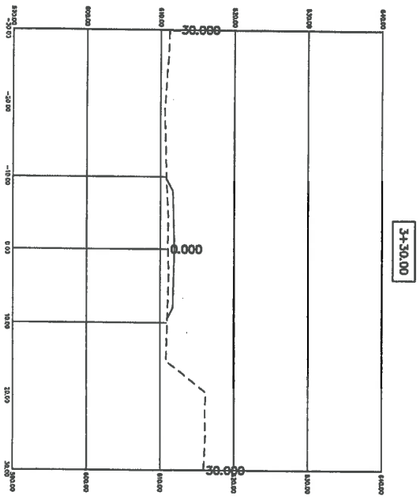
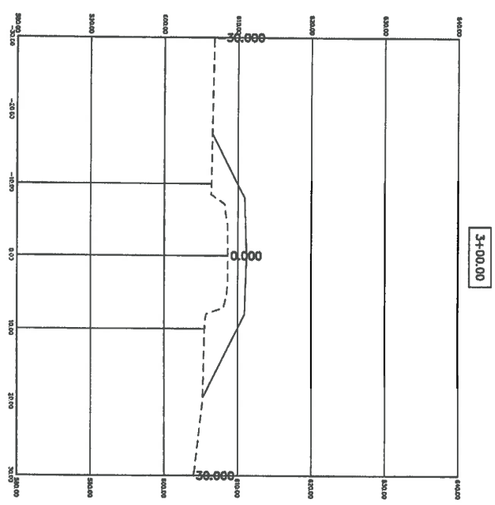
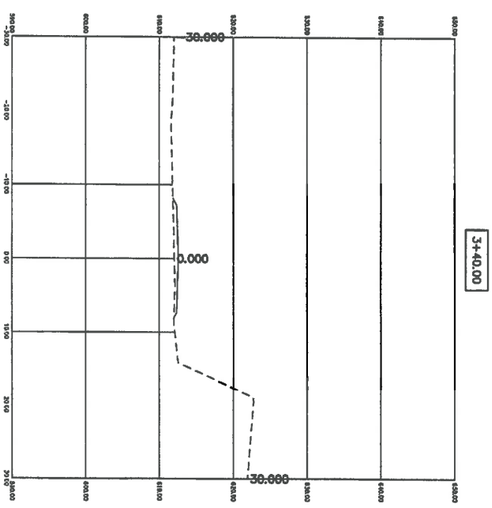
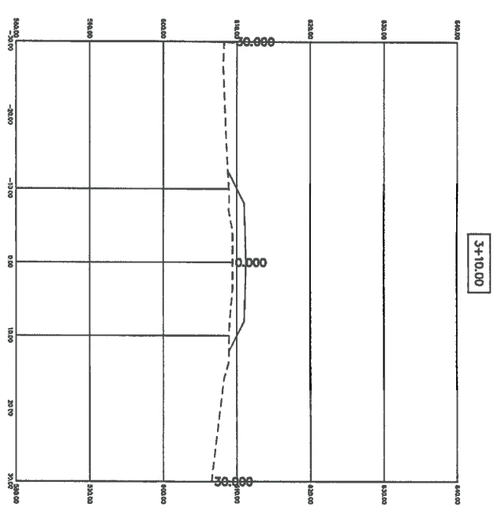
PROJECT 1621.90048.01
DATE 01/15/2016
FIELDBOOK 2558

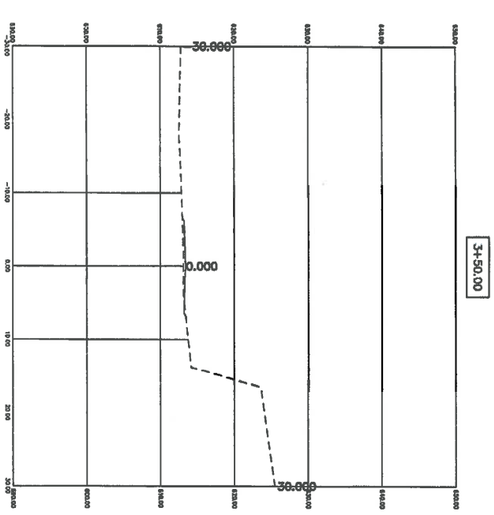
SHEET B6 of B9

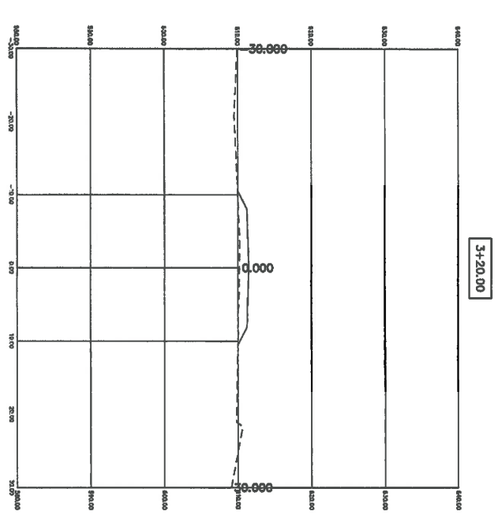












BRIDGE DESIGN - FORTUNE CREEK
FORTUNE CREEK AT CACHE CREEK ROAD
SECTIONS

SECTION 28, T1N, R4W, FAIRBANKS MERIDIAN, ALASKA

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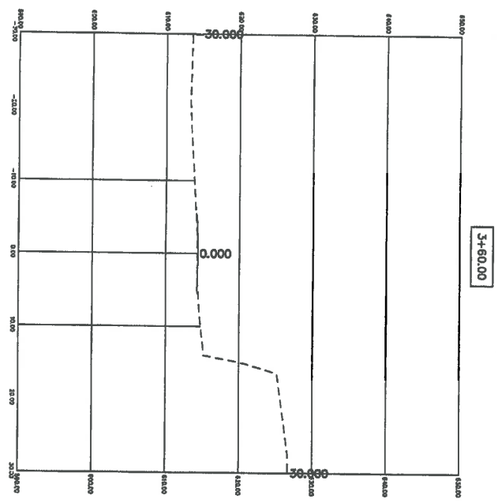
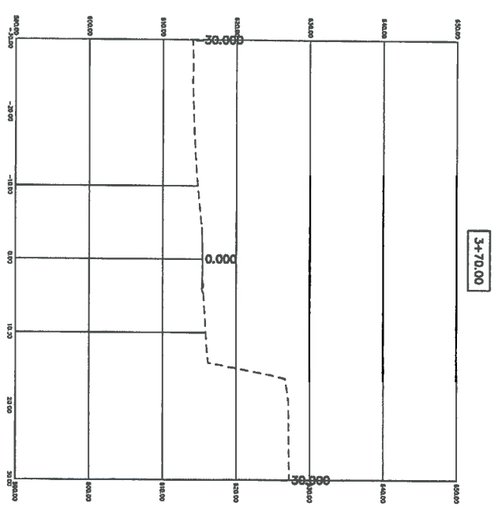
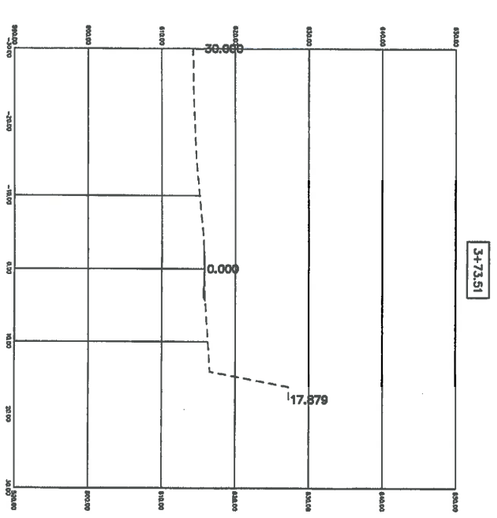
REV	DATE	DESCRIPTION	BY

PROJECT 1621.90048.01
DATE 01/15/2016
FIELDBOOK 2558

SHEET B7 of B9







BRIDGE DESIGN - FORTUNE CREEK
FORTUNE CREEK AT CACHE CREEK ROAD
SECTIONS

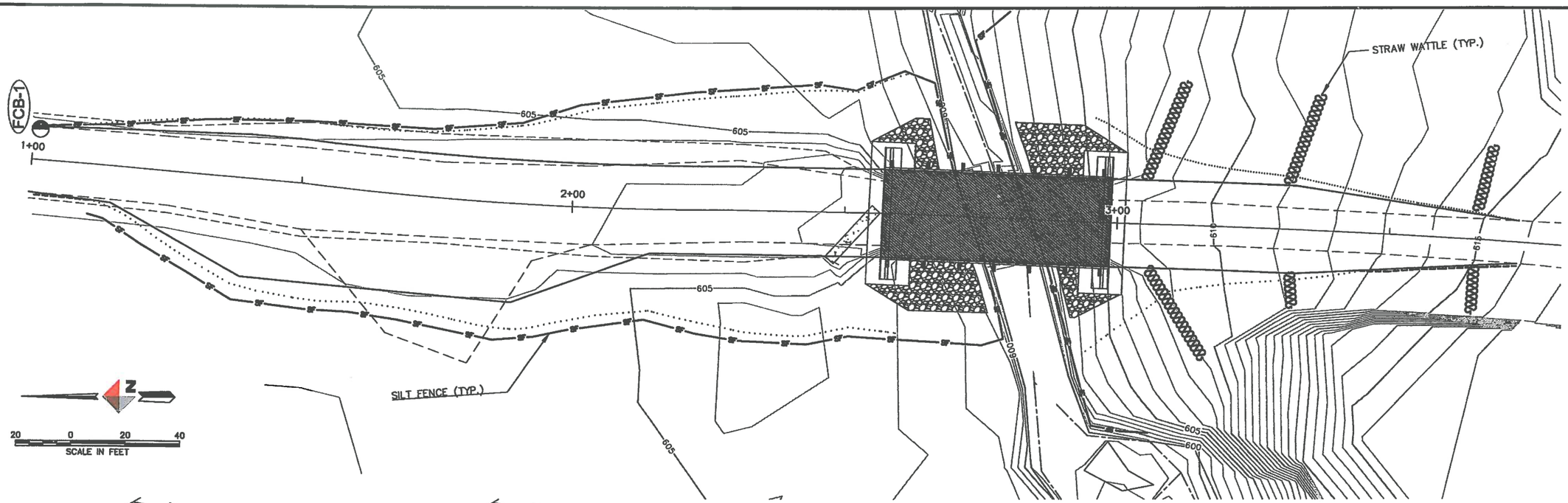
SECTION 28, T1N, R4W, FAIRBANKS MERIDIAN, ALASKA

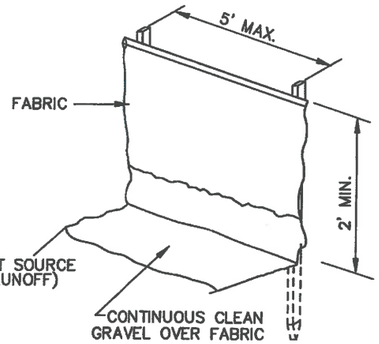
DOWL
WWW.DOWL.COM

REVISIONS			
REV	DATE	DESCRIPTION	BY

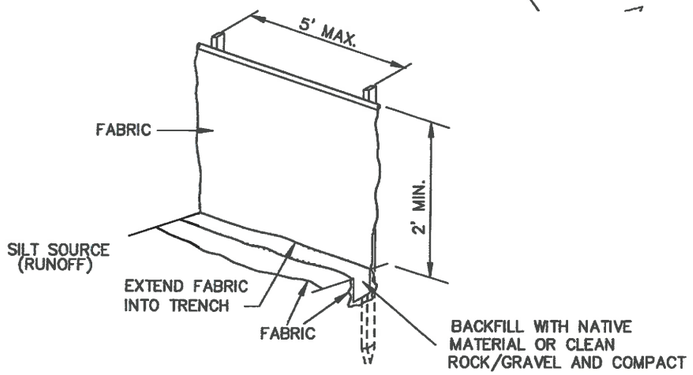
PROJECT 1821.90048.01
DATE 07/15/2016
FIELDBOOK 2558

SHEET B8 OF B9





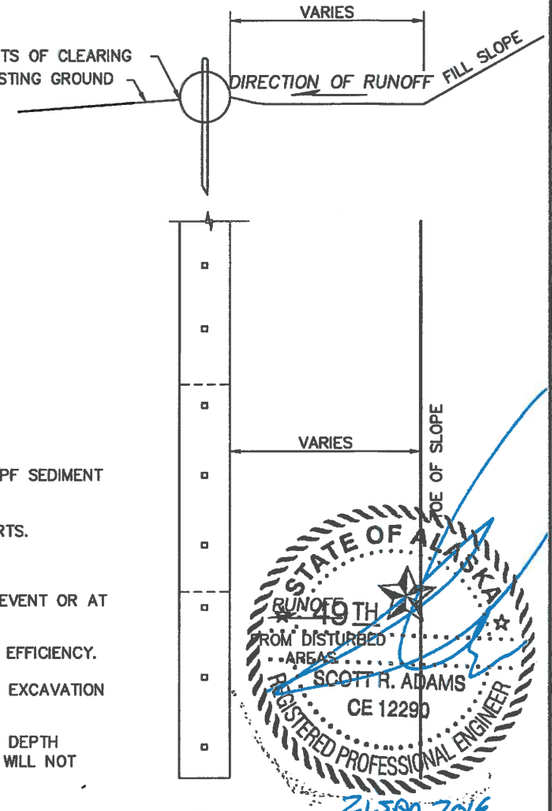
BACKFILL ALTERNATE



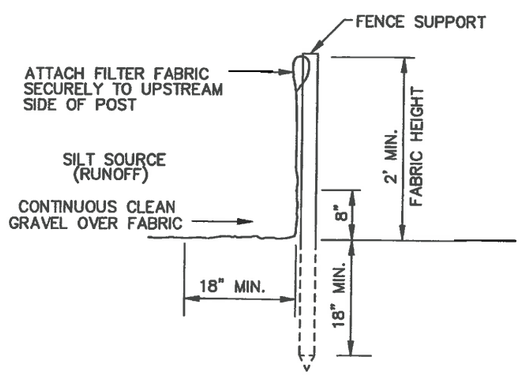
TRENCH ALTERNATE

STRAW WATTLE INSTALLATION NOTES:

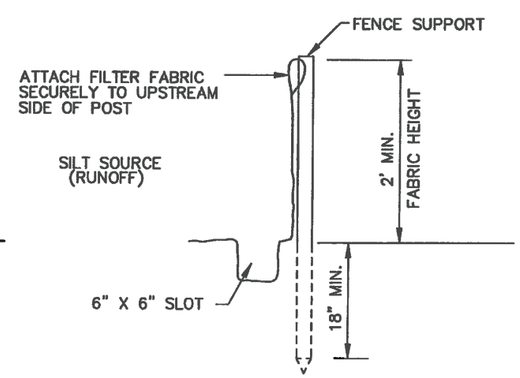
1. PERFORM MINOR HAND TRENCHING TO PROVIDE A STABLE FOUNDATION FOR THE STRAW WATTLES.
2. WHERE TWO STRAW WATTLES MEET, PLACE THE ENDS ABUTTED TIGHTLY AND FASTEN TOGETHER TO PROVIDE A CONTINUOUS BARRIER.
3. STAKE THE STRAW WATTLE EVERY 4 FT. MAXIMUM SPACING TO SECURE STRAW WATTLES.
4. INTERTWINE EACH STAKE WITH THE NETTING AND DRIVE STAKE LEAVING APPROXIMATELY 3 IN. ABOVE THE STRAW WATTLE.
5. TAMP SOIL ADJACENT TO UPSTREAM SIDE TO ASSURE WATER IS FORCED THROUGH THE STRAW WATTLE RATHER THAN UNDER IT.



PLAN
INSTALLATION OF A STRAW WATTLE



BACKFILL CROSS SECTION



TRENCH CROSS SECTION

SILT FENCE INSTALLATION NOTES:

1. INSTALLATION AND APPLICTION SHALL BE IN ACCORDANCE WITH THE ADOT/PF SEDIMENT AND EROSION CONTROL MANUAL (http://www.dot.state.ak.us).
2. SILT FENCE FABRIC SHALL BE OVERLAPPED AT LEAST 6" AT FENCE SUPPORTS.
3. SILT FENCE FABRIC SHALL BE TAUT, NOT LOOSE OR FOLDED.
4. THE CONTRACTOR SHALL INSPECT AND REPAIR FENCE AFTER EACH STORM EVENT OR AT LEAST ONCE EVERY SEVEN DAYS.
5. SILT FENCE SHALL BE PLACED ON SLOPE CONTOURS TO MAXIMIZE PONDING EFFICIENCY.
6. FENCE SHALL BE PLACED AT LEAST 5' FROM THE TOE OF EMBANKMENT OR EXCAVATION AREAS, OR AS DIRECTED BY THE ENGINEER.
7. ACCUMULATION OF SEDIMENT BEHIND SILT FENCE SHALL BE REMOVED WHEN DEPTH REACHES 12". REMOVED SEDIMENT SHALL BE DEPOSITED IN AN AREA THAT WILL NOT CONTRIBUTE SEDIMENT OFF-SITE AND CAN BE PERMANENTLY STABILIZED.

STATE OF ALASKA
49TH
SCOTT R. ADAMS
CE 12290
REGISTERED PROFESSIONAL ENGINEER
21JAN.2016

REVISIONS

REV	DATE	DESCRIPTION	BY

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BRIDGE DESIGN - FORTUNE CREEK
FORTUNE CREEK AT CACHE CREEK ROAD
EROSION CONTROL

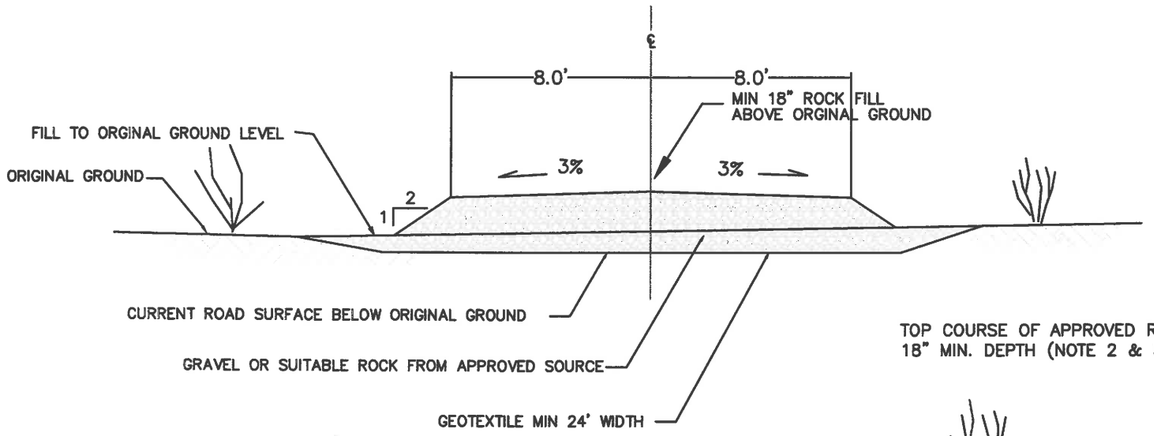
SECTION 28, T1N, R4W, FAIRBANKS MERIDIAN, ALASKA

PROJECT	1821.90048.01
DATE	01/15/2016
FIELDBOOK	2558

SHEET

B9 OF B9

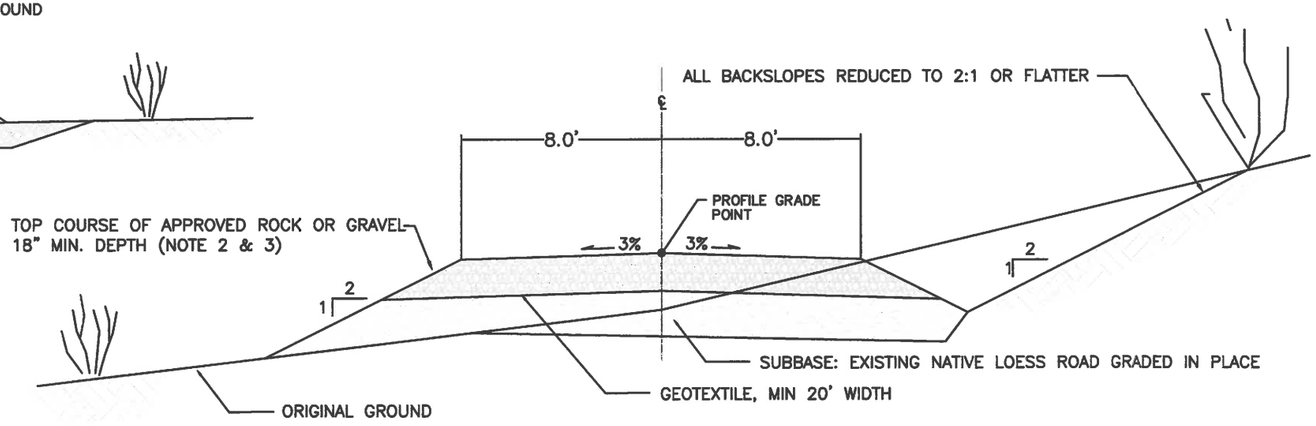
STANDARD CREEK ROAD CROSS-SECTION TYPICALS



ROAD TYPICAL SECTION
SUNKEN AREA REPAIR

(1)

1. GRAVEL OR NON–FROST SUSCEPTIBLE ROCK FILL OF APPROVED SOURCE AND GRANULATION
2. MINIMUM 18" OF ROCK FILL ABOVE ORIGINAL GROUND SURFACE LEVEL
3. NATIVE VEGETATION AND GROUND SURFACE TO BE LEFT IN PLACE UNLESS DIRECTED OTHERWISE BY PROJECT ENGINEER.
4. NO DITCHING PERMITTED IN FILL AREAS EXCEPT AS DIRECTED BY THE PROJECT ENGINEER
5. GEOTEXTILE TO BE PROPEX 250ST OR EQUIVALENT NON–WOVEN FABRIC



ROAD TYPICAL SECTION
CUT / FILL SECTION REPAIR

(2)

1. SUBBASE TO CONSIST OF EXISTING NATIVE LOESS ROAD BED, GRADED AND CROWNED
2. GRAVEL OR NON–FROST SUSCEPTIBLE ROCK FILL OF APPROVED SOURCE AND GRADATION
3. 18" MIN SURFACE COURSE DEPTH. SELECT AREAS MAY REQUIRE ADDITIONAL FILL
4. IN–PLACE VOLUME OF ROCK FILL ESTIMATED AT 1.3 CYD PER LINEAL FT OF ROAD
5. INSLOPES AND BACKSLOPES TO BE REDUCED TO 2:1 OR FLATTER TO PROMOTE VEGETATION REGROWTH
6. NATIVE SOIL BACKSLOPES TO BE TRACKED TO REDUCE EROSION
7. GEOTEXTILE TO BE PROPEX 250ST OR EQUIVALENT NON–WOVEN FABRIC

STATE OF ALASKA
49TH
ISAAC ROWLAND
No. EM–13667
REGISTERED PROFESSIONAL ENGINEER

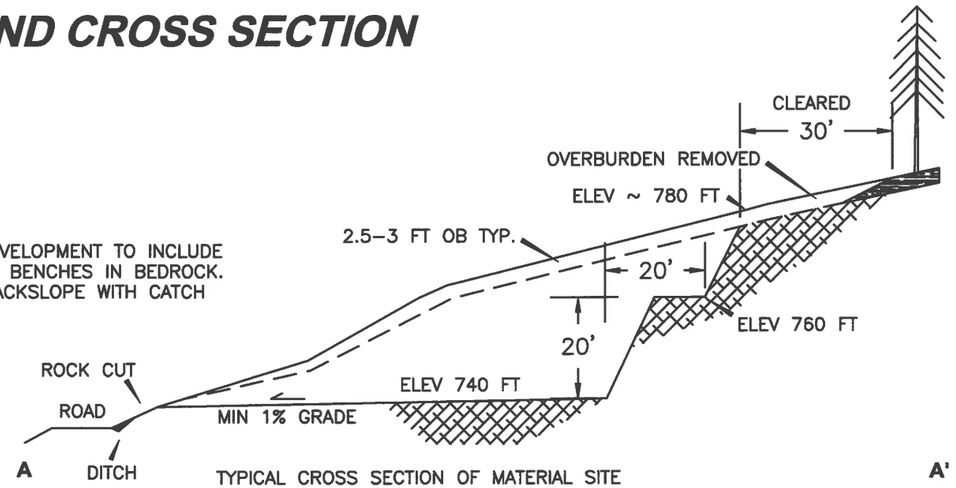
02-22-16

RECON, LLC
ROWLAND ENGINEERING CONSULTANTS
481 WEST RECON CIRCLE
PALMER, AK 99645
907–746–3630

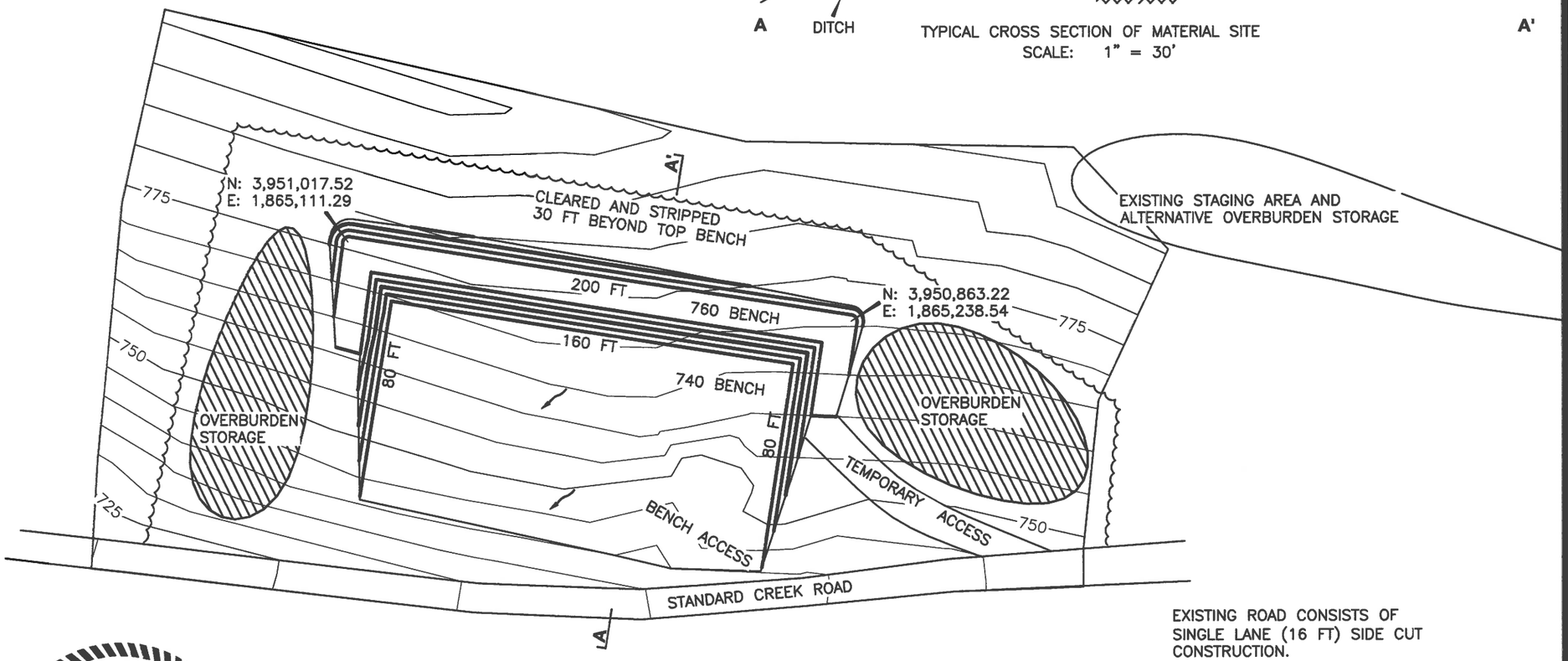
SCALE	SHEET NUMBER
NOT TO SCALE	C - 1
PLOT DATE	
2/18/16	REV 2
DRAWN BY	
ISAAC ROWLAND, PE	

STANDARD CREEK MATERIAL SITE MS-02
DESIGN PLAN AND CROSS SECTION

QUARRY DEVELOPMENT TO INCLUDE TWO 20 FT BENCHES IN BEDROCK. 1:1 MAX BACKSLOPE WITH CATCH BENCH.



TYPICAL CROSS SECTION OF MATERIAL SITE
SCALE: 1" = 30'



MATERIAL SITE MS–02 PLAN VIEW
SCALE: 1" = 50'

EXISTING ROAD CONSISTS OF SINGLE LANE (16 FT) SIDE CUT CONSTRUCTION.

PROPOSED MATERIAL SITE LOCATED NEAR MP 13.5 ON STANDARD CREEK ROAD. QUARRY PLAN PROVIDES UP TO 9,500 BANK CYD OF UNCLASSIFED SHOT ROCK FILL FOR GENERAL ROAD REPAIRS AND UPGRADES.

STATE OF ALASKA
49TH
ISAAC ROWLAND
No. EM-13667
REGISTERED PROFESSIONAL ENGINEER

02-22-16

RECON, LLC

ROWLAND ENGINEERING CONSULTANTS
481 WEST RECON CIRCLE
PALMER, AK 99645
907–746–3630

LEGEND

- EXISTING 5' CONTOURS
- DESIGN 5' CONTOURS
- DRAINAGE DIRECTION
- A — CROSS SECTION

NOTES

1.) VEGETATION PRIMARILY MATURE WHITE SPRUCE

2.) 2.5–3.0 FT OVERBURDEN TYPICAL. EST. 2500 CYD STRIPPING.

3.) BEDROCK CONSISTS OF FAIRBANKS SCHIST

4.) MINING METHOD TO CONSIST OF DRILL/BLAST.

5.) EST SHOT ROCK YIELD (LOOSE CYD):

760 BENCH = 3000 CYD
6.) 740 BENCH = 8500 CYD

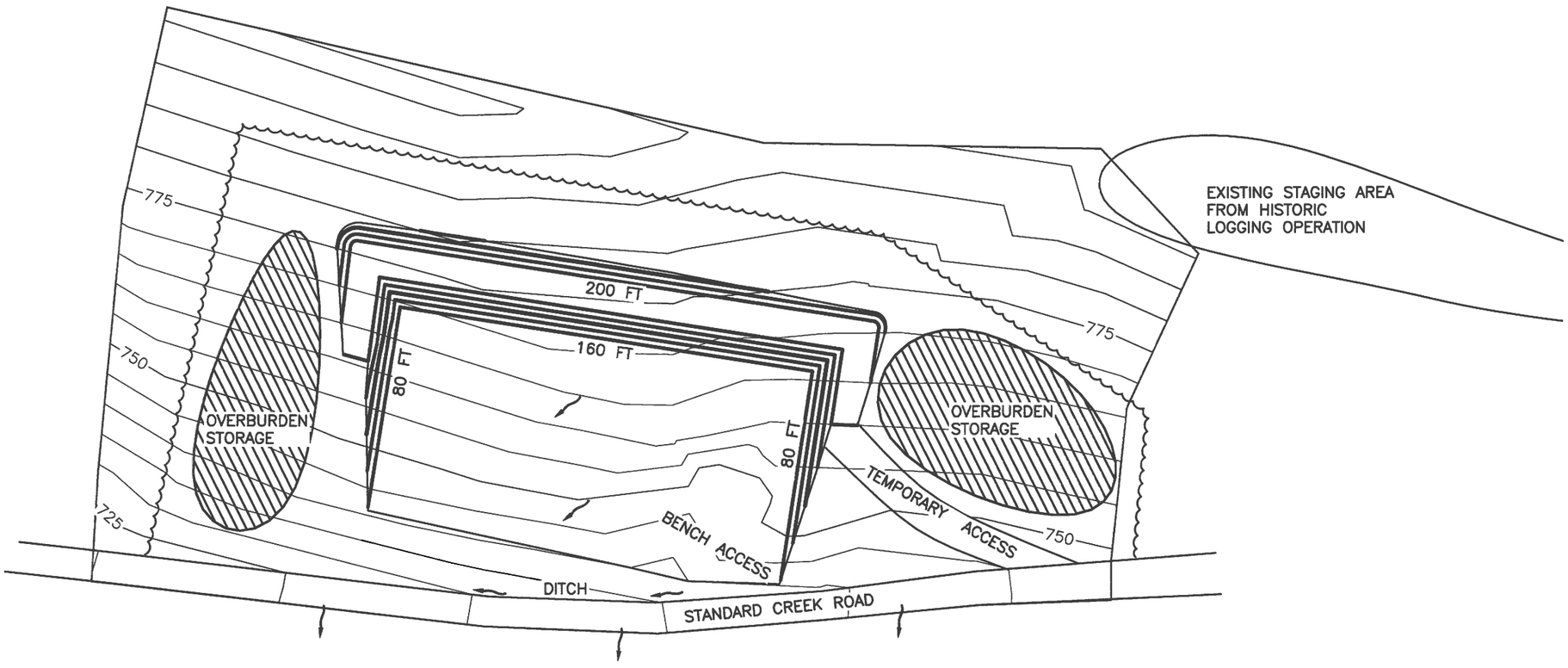
7.) TOTAL AREA 1.2 ACRES

8.) TOTAL MINING AREA 0.5 ACRES

PROJECT CONTROL POINT #101
NAD83 (2011) SPCS AKZ4N
N) 3,950,628.58 usft
E) 1,866,180.29 usft
EL) 842.55 usft

SCALE	SHEET NUMBER
AS SHOWN	C - 2
PLOT DATE	
2/18/16	REV 2
DRAWN BY	
ISAAC ROWLAND, PE	

STANDARD CREEK MATERIAL SITE MS-02
DETAILED EROSION SEDIMENT CONTROL PLAN



MATERIAL SITE MS-02 PLAN VIEW
SCALE: 1" = 50'

RECON, LLC

ROWLAND ENGINEERING CONSULTANTS
481 WEST RECON CIRCLE
PALMER, AK 99645
907-746-3630

LEGEND

- EXISTING 5' CONTOURS
- DESIGN 5' CONTOURS
- DRAINAGE DIRECTION
- A — CROSS SECTION

NOTES

1.) VEGETATION PRIMARILY MATURE WHITE SPRUCE

2.) 2.5-3.0 FT OVERBURDEN TYPICAL. EST. 2000 CYD STRIPPING.

3.) BEDROCK CONSISTS OF FAIRBANKS SCHIST

4.) MINING METHOD TO CONSIST OF DRILL/BLAST.

5.) EST SHOT ROCK YIELD (LOOSE CYD):

6.) 760 BENCH = 3000 CYD
740 BENCH = 8500 CYD

7.) TOTAL AREA 1.5 ACRES

8.) TOTAL MINING AREA 0.5 ACRES

PROJECT CONTROL POINT #101
NAD83 (2011) SPCS AKZ4N
N) 3,950,628.58 usft
E) 1,866,180.29 usft
EL) 842.55 usft

SCALE	SHEET NUMBER
AS SHOWN	C - 3
PLOT DATE	
2/18/16	REV 2
DRAWN BY	
ISAAC ROWLAND, PE	

FOREST ROAD PERFORMANCE STANDARDS

1. ALL ROADS SHALL BE BUILT TO THE STANDARDS LISTED WITHIN THIS PERFORMANCE STANDARD UNLESS THE PROJECT ENGINEER HAS DETERMINED THAT A SITE SPECIFIC DESIGN IS PRUDENT. THE PERFORMANCE STANDARD FOR ADNR FOREST ROADS AND THE ADNR FOREST ROADS STANDARD DRAWINGS CONVEY THE DEPARTMENT'S INTENT. IN THE EVENT OF A CONFLICT BETWEEN DOCUMENTS, THE PROJECT ENGINEER WILL DETERMINE THE ORDER OF PRECEDENCE.

2. REFERENCE THE FOLLOWING RESOURCES FOR ADDITIONAL INFORMATION:
   A. ALASKA FOREST RESOURCES & PRACTICES REGULATIONS (FRPA), 11 AAC 95, OCTOBER 2013;
   B. ALASKA STATUTE 41.17, FOREST RESOURCES AND PRACTICES.

3. ROAD LOCATION AND CLASSIFICATION ARE IDENTIFIED IN THE TIMBER SALE CONTRACT OR THE BID DOCUMENTS. DEVIATION FROM THESE DOCUMENTS IS PERMITTED ONLY WITH THE WRITTEN PERMISSION OF THE PROJECT ENGINEER.

4. REGARDLESS OF REGION, ROADS WILL BE CLASSIFIED AS PRIMARY, SECONDARY, OR SPUR.
   A. A PRIMARY ROAD IS A HIGH USE PERMANENT ROAD WITH THE FOLLOWING CHARACTERISTICS:
      I. MINIMUM 16 FOOT WIDE RUNNING SURFACE;
      II. TYPICALLY SINGLE LANE;
      III. VERTICAL GRADE: MAXIMUM FAVORABLE GRADE IS 10%, MAXIMUM ADVERSE GRADE IS 6%;
      IV. MINIMUM HORIZONTAL CURVE RADIUS OF 360 FEET; AND
      V. DESIGN SPEED OF 40 MPH.
   B. A SECONDARY ROAD IS A MODERATE TO LOW USE, YEAR ROUND, PERMANENT ROAD WITH THE FOLLOWING CHARACTERISTICS:
      I. MINIMUM 14 FOOT WIDE RUNNING SURFACE;
      II. SINGLE LANE;
      III. VERTICAL GRADE: MAXIMUM FAVORABLE GRADE IS 10%, MAXIMUM ADVERSE GRADE IS 8%;
      IV. MINIMUM HORIZONTAL CURVE RADIUS OF 140 FEET; AND
      V. DESIGN SPEED OF 25 MPH.
   C. A SPUR ROAD IS A TEMPORARY, LOW USE ROAD WITH THE FOLLOWING CHARACTERISTICS:
      I. MINIMUM 14 FOOT WIDE RUNNING SURFACE;
      II. SINGLE LANE;
      III. VERTICAL GRADE: MAXIMUM FAVORABLE GRADE IS 20%, MAXIMUM ADVERSE GRADE IS 12%;
      IV. MINIMUM HORIZONTAL CURVE RADIUS OF 50 FEET; AND
      V. DESIGN SPEED OF 15 MPH.
   D. A WINTER ROAD SUPPORTS VEHICLE TRAFFIC DURING WINTER MONTHS ONLY. IT IS CONSTRUCTED USING FROST, SNOW, AND/OR ICE. WINTER ROADS HAVE THE FOLLOWING CHARACTERISTICS:
      I. MINIMUM 14 FOOT WIDE RUNNING SURFACE;
      II. SINGLE LANE;
      III. VERTICAL GRADE: MAXIMUM FAVORABLE GRADE IS 10%, MAXIMUM ADVERSE GRADE IS 10%;
      IV. MINIMUM HORIZONTAL CURVE RADIUS OF 75 FEET; AND
      V. DESIGN SPEED OF 20 MPH.

5. CROWN or SLOPE TRAVELED WAY OR ROADBED 3–5% FOR ALL SECTIONS.

6. ALL FILL SLOPES SHALL BE 2:1 (OR FLATTER) AND ALL CUT SLOPES SHALL BE 1:1 (OR FLATTER) IN COMMON MATERIAL OR 1/4:1 (OR FLATTER) IN BEDROCK. TERRACED SLOPES ARE PERMITTED IF THEY FIT WITHIN THE RIGHT–OF–WAY.

7. UTILIZE APPROVED MATERIAL LOCATED WITHIN THE RIGHT–OF–WAY TO CONSTRUCT THE ROAD. IF SUFFICIENT MATERIAL IS NOT AVAILABLE OR OF SUITABLE QUALITY, THE PROJECT ENGINEER MAY AUTHORIZE THE IMPORT OF BORROW. IN GENERAL,ALL ROADS EXCEPT WINTER ROADS ARE TYPICALLY CONSTRUCTED AS FOLLOWS:
   A. REGION I ROADS HAVE A 12 –24" SUBGRADE CONSISTING WELL–GRADED ANGULAR STONE WITH A D50 OF 3 INCHES OR GREATER (SHOT ROCK) OR A POORLY GRADED NATURAL SAND AND GRAVEL MIX WITH A MAX GRAIN SIZE OF 12" (PIT RUN GRAVEL). IF AUTHORIZED BY THE PROJECT ENGINEER, THAT MATERIAL MAY ALSO BE USED AS THE RUNNING SURFACE.
   B. REGION II AND III ROADS HAVE A 12–24" SUBGRADE CONSISTING OF SAND, GRAVEL ROCK, OR COMBINATIONS THEREOF CONTAINING NO MUCK, PEAT, FROZEN MATERIAL, ROOTS, SOD, OR OTHER DELETERIOUS MATTER (DOT&PF TYPE "C" MATERIAL). THE PROJECT ENGINEER MAY AUTHORIZE THE USE OF NATIVE MATERIAL FROM DITCHES. A SURFACING MATERIAL MEETING THE REQUIREMENTS OF DOT&PF TYPE E–1 MATERIAL MAY BE REQUIRED.

8. CLEARING LIMITS WILL VARY WITH GROUND CONDITIONS. CLEAR AS NECESSARY TO MEET ROAD TYPICAL CROSS SECTIONS AND SAFE SIGHT DISTANCE AS DIRECTED BY THE PROJECT ENGINEER AND SUBJECT TO THE CONDITIONS IN THE CONTRACT DOCUMENTS.

9. DURING ROAD CLEARING OPERATIONS, ALL MERCHANTABLE TIMBER WITHIN THE CLEARING LIMITS SHALL BE FELLED, LIMBED AND DECKED. MERCHANTABLE TIMBER SHALL BE DECKED ALONG THE ROAD IN A MANNER THAT DOES NOT CREATE A HAZARD TO THE PUBLIC. LOGS SHALL BE DECKED IN AN ORDERLY MANNER AND NOT OBSTRUCT SURFACE WATERS. LOG DECKS SHALL BE CONFIGURED TO EFFICIENTLY AND SAFELY LOAD LOG TRUCKS; LOG DECKS GENERALLY SHALL BE CONSOLIDATED IN A MANNER THAT FACILITATES THE LOADING OF FULL LOADS WITHOUT LOG TRUCK MOVEMENT. UNMERCHANTABLE TIMBER AND DEBRIS SHALL BE TREATED AS APPROVED IN THE OPERATING PLAN UNLESS DIRECTED OTHERWISE IN WRITING BY THE PROJECT ENGINEER.

10. PRIOR TO BURNING CONSTRUCTION DEBRIS, CONTACT DOF AND THE LOCAL WILDLAND FIRE JURISDICTIONAL AGENCY FOR WRITTEN APPROVAL.

11. DITCHES SHALL BE 2' WIDE MINIMUM OR AS REQUIRED FOR ADEQUATE DRAINAGE AND SNOW STORAGE AS DETERMINED BY THE PROJECT ENGINEER.

12. PRELIMINARY LOCATION OF DRAINAGE STRUCTURES ARE IDENTIFIED IN THE BID DOCUMENTS. ADDITIONAL DRAINAGE STRUCTURES MAY BE REQUIRED.
   A. FORDING OF ANY STREAM BY ROADS SHALL BE IN ACCORDANCE WITH 11 AAC 95.295 (C) AND 95.305.
   B. MINIMUM CULVERT DIAMETER IS 18".
   C. CULVERTS MUST EXTEND A MINIMUM OF 36" BEYOND THE TOE OF FILL ON BOTH SIDES OF THE ROAD.
   D. CULVERT ENDS SHALL BE CONSTRUCTED TO PREVENT SCOUR OF THE ROAD BED.

13. FISH PASSAGE LOCATIONS ARE IDENTIFIED IN THE BID DOCUMENTS.
   A. FISH PASSAGE DESIGN AND CONSTRUCTION SHALL BE IN ACCORDANCE WITH ALASKA DEPARTMENT OF FISH AND GAME PERMIT AND GUIDELINES.
   B. CHANGES TO THE COURSE OF AN ANADROMOUS FISH BEARING WATERWAY MUST BE APPROVED, IN WRITING, BY THE ALASKA DEPARTMENT OF FISH AND GAME.
   C. OBTAIN WRITTEN PERMISSION FROM ALASKA DEPARTMENT OF FISH AND GAME PRIOR TO FORDING ANADROMOUS FISH WATERS.
   D. THE INLET AND OUTLET OF FISH PASSAGES SHALL MATCH THE NATURAL COURSE OF THE STREAM CHANNEL.
   E. DO NOT PERCH CULVERT ENDS.

14. CONTROL OR PREVENT EROSION, SILTATION, WATER DEGRADATION AND POLLUTION PER AS 41.17 AND 11 AAC95 (FRPA) AND AS SPECIFIED IN THE DRAWINGS FOR SITE SPECIFIC CONCERNS or AS DIRECTED BY THE ENGINEER. AT A MINIMUM, FRPA BMP'S SHALL BE USED FOR EROSION CONTROL AND MAINTENANCE AND ARE A REQUIREMENT OF ALL CONTRACTS.

15. TURNOUTS SHALL BE PLACED ON PRIMARY ROADS AT INTER–VISIBLE LOCATIONS OR AS DETERMINED BY THE PROJECT ENGINEER. TURNAROUNDS SHALL BE PLACED ON SECONDARY AND SPUR ROADS AT LOCATIONS DETERMINED BY THE PROJECT ENGINEER. SEE SHEET E–02.00 FOR TURNOUT AND TURNAROUND DETAIL.

16. INSTALL SIGNAGE AS DIRECTED BY THE PROJECT ENGINEER.
   A. AT A MINIMUM, SIGNS WILL BE INSTALLED AT THE FOLLOWING LOCATIONS:
      I. R1–1 SIGNS AT ALL STOP CONTROLLED INTERSECTIONS;
      II. D–10 SERIES SIGNS AT FULL MILE INTERVALS ALONG PRIMARY AND SECONDARY ROADS;
      III. OM–3 SERIES OBJECT MARKERS AT ALL OBSTACLES AND HAZARDS E.G. BRIDGE ENDS; AND
      IV. "ACTIVE LOGGING ROAD..." SIGN AT ENTRANCE TO THE ROAD.

17. YEAR ROUND ROADS ARE NOT TO BE USED FOR HAULING OPERATIONS WHEN ROADS ARE NOT SAFE, SUSCEPTIBLE TO EXCESSIVE DAMAGE OR UNREASONABLE WEAR, AS DETERMINED BY THE PROJECT ENGINEER.
LAYER IS TOO THIN TO PREVENT SURFACE DEFORMATION.

GEOMETRIC STANDARDS		
ROAD CLASSIFICATION	DESIGN SPEED (MPH)	MIN. HORIZONTAL CURVE RADIUS
PRIMARY OR MAIN HAUL ROADS	35	360'
SECONDARY ROAD	20	140'
SPUR ROAD	10	50'
WINTER ROAD	15 OR BY CLASSIFICATION	75'

MINIMUM HORIZONTAL CURVE RADIUS TAKEN FROM EXHIBIT 16 OF THE AASHTO
GUIDELINES FOR GEOMETRIC DESIGN OF VERY LOW VOLUME LOCAL ROADS (ADT<400).
USING A TRACTION COEFFICIENT OF 0.5 FOR NON–WINTER ROADS AND 0.4 FOR WINTER ROADS.

Revisions			
No.	Date	Description	By
1	11/5/2015		GS

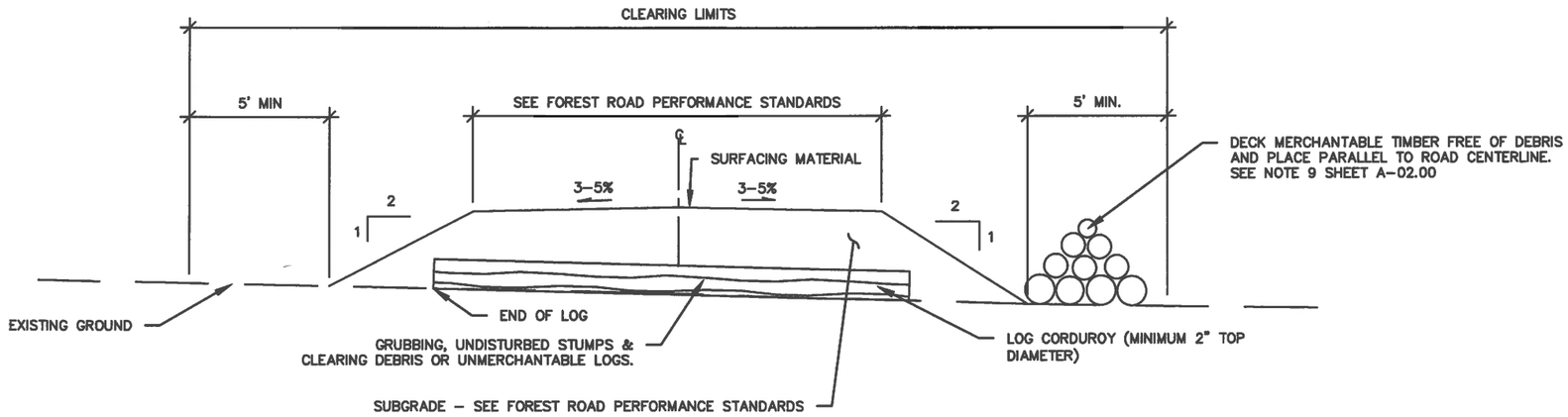
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FORESTRY — STATE OF ALASKA

ROADS,INFRASTRUCTURE AND BRIDGES SECTION

FOREST ROAD PERFORMANCE STANDARDS

PREPARED: JDM
DRAWN: JDM
REVIEWED: SRA
DATE: 03/04/15

SHEET
A–02.00

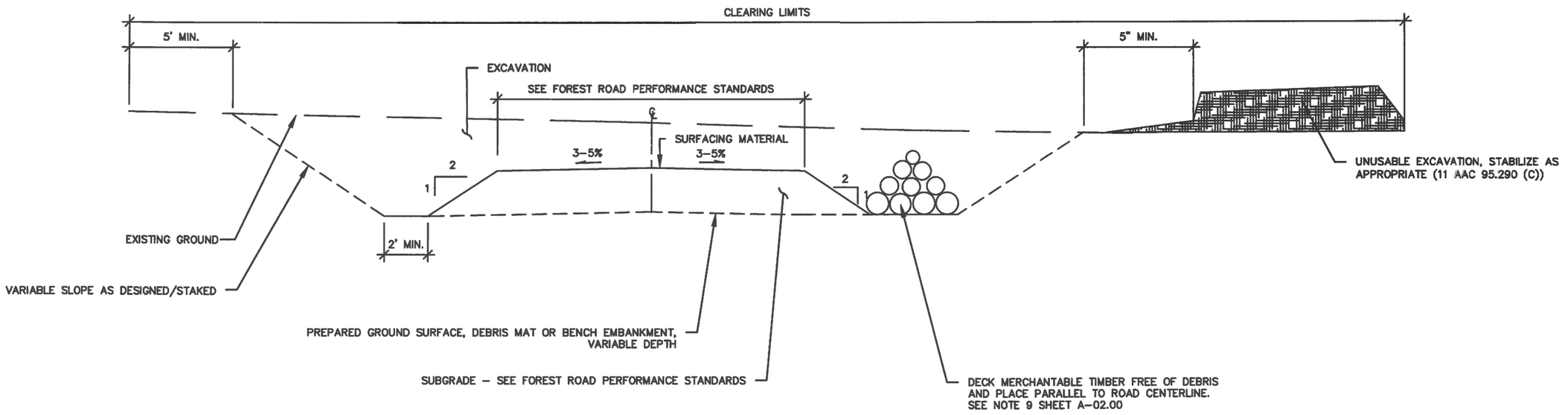


NOTES:

1. IF CROSS DRAINAGE IS A CONCERN PLACE A LAYER OF GEOTEXTILE FABRIC ON TOP OF LOGS.

TYPICAL OVERLAY SECTION

NOT TO SCALE



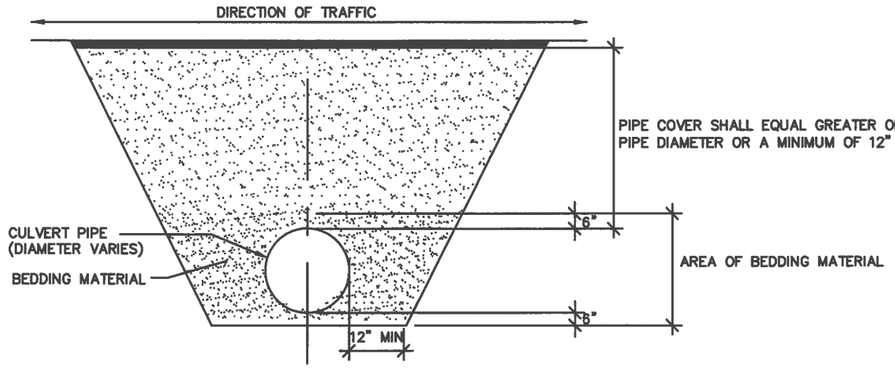
TYPICAL THRU–CUT SECTION

NOT TO SCALE

Revisions			
No.	Date	Description	By

DEPARTMENT OF NATURAL RESOURCES DIVISION OF FORESTRY STATE OF ALASKA	ROADS, INFRASTRUCTURE AND BRIDGES SECTION		TYPICAL SECTIONS	PREPARED: JDM DRAWN: JDM REVIEWED: SRA DATE: 03/04/15

SHEET B–02.00

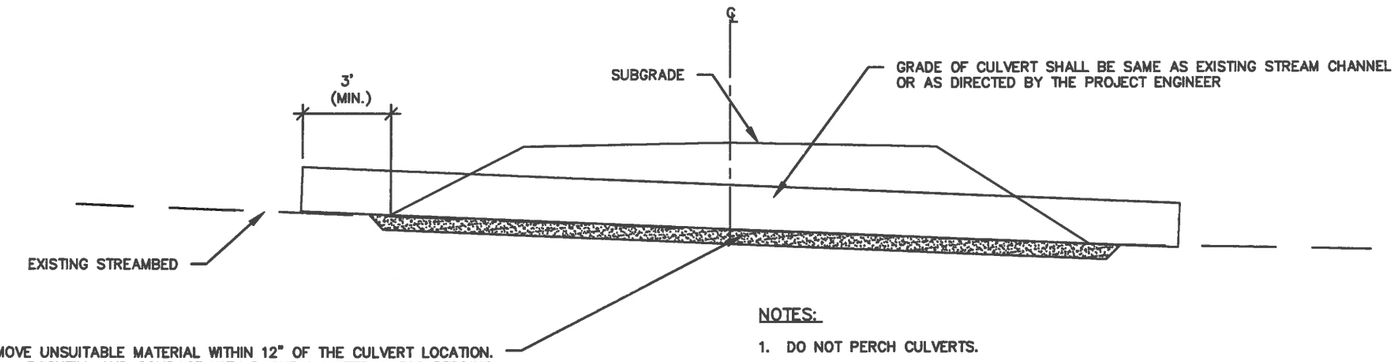


TYPICAL CULVERT TRENCH SECTION

NOT TO SCALE

NOTES:

1. CULVERT JOINTS SHALL HAVE WATERTIGHT GASKETS AND SHALL NOT LEAK.
2. CULVERT PLACEMENT SHALL BE APPROVED BY THE PROJECT ENGINEER BEFORE BACKFILLING.
3. ALL USABLE MATERIAL (COMMON EXCAVATION) SHALL BE USED AS BACKFILL FOR EMBANKMENT CONSTRUCTION.
4. SIDE SLOPES SHALL BE EXCAVATED AT 0.5H:1V OR FLATTER IN ACCORDANCE WITH ALL APPLICABLE SAFETY REQUIREMENTS.
5. BEDDING MATERIAL SHALL AT A MINIMUM MEET THE SAME REQUIREMENTS AS THE SUBGRADE MATERIAL. DO NOT PLACE ROCKS LARGER THAN 6 INCHES IN DIAMETER AGAINST CULVERT. PLACE AND COMPACT BEDDING IN LIFTS TO ADEQUATELY SUPPORT THE PIPE.
6. FOLLOW MANUFACTURE'S REQUIREMENTS FOR INSTALLATION UNLESS DIRECTED OTHERWISE BY THE PROJECT ENGINEER.
7. WHEN JOINING TWO PIPES TOGETHER, THE MINIMUM LENGTH OF PIPE TO BE JOINED SHALL BE SIX FEET.



MINIMUM CULVERT SPACING 11 AAC 95.295 (B)		
PERCENT OF LONGITUDINAL GRADE	REGION I	REGION II & REGION III
0 TO 2	SEE NOTE #7	SEE NOTE #7
2 TO 7	1,000	1,500
8 TO 15	800	1,000
OVER 15	600	800

NOTES:

1. DO NOT PERCH CULVERTS.
2. PLACE CULVERT IN ALIGNMENT WITH THE NATURAL STREAM CHANNEL. WHERE NO CHANNEL IS APPARENT, INSTALL CULVERTS AT SKEW AND SLOPE TO DRAIN OR AS DIRECTED BY THE PROJECT ENGINEER.
3. MINIMUM CULVERT GRADES SHALL BE 5% OR 1/2 OF THE TRIBUTARY DITCH GRADE.
4. CAMBER WILL DEPEND ON SITE CONDITIONS. MAXIMUM CAMBER IS 2% (STEEL OR ALUMINUM CULVERTS) OR 1% (POLYETHYLENE CULVERTS) OF CULVERT LENGTH BY NO MORE THAN 2.5 INCHES AT CENTER.
5. MINIMUM CULVERT DIAMETER IS 18".
6. CULVERT INLETS AND OUTLETS SHALL EXTEND 36 INCHES BEYOND THE TOE OF THE FILL UNLESS OTHERWISE AGREED TO BY THE PROJECT ENGINEER.
7. CULVERTS MUST BE SPACED TO PREVENT POOLING OF WATER CAUSED BY THE PRESENCE OF THE ROADBED.
8. PROVIDE ENERGY DISSAPATORS AT OUTLETS OF STORM DRAIN CULVERTS (FRPA 11 AAC 95.305 (C)).
9. RELIEF CULVERT SPACING WILL DEPEND ON SITE CONDITIONS. PROJECT ENGINEER TO ADVISE.

TYPICAL CULVERT INSTALLATION

NOT TO SCALE

Revisions			
No.	Date	Description	By
0	11/9/2015		GS

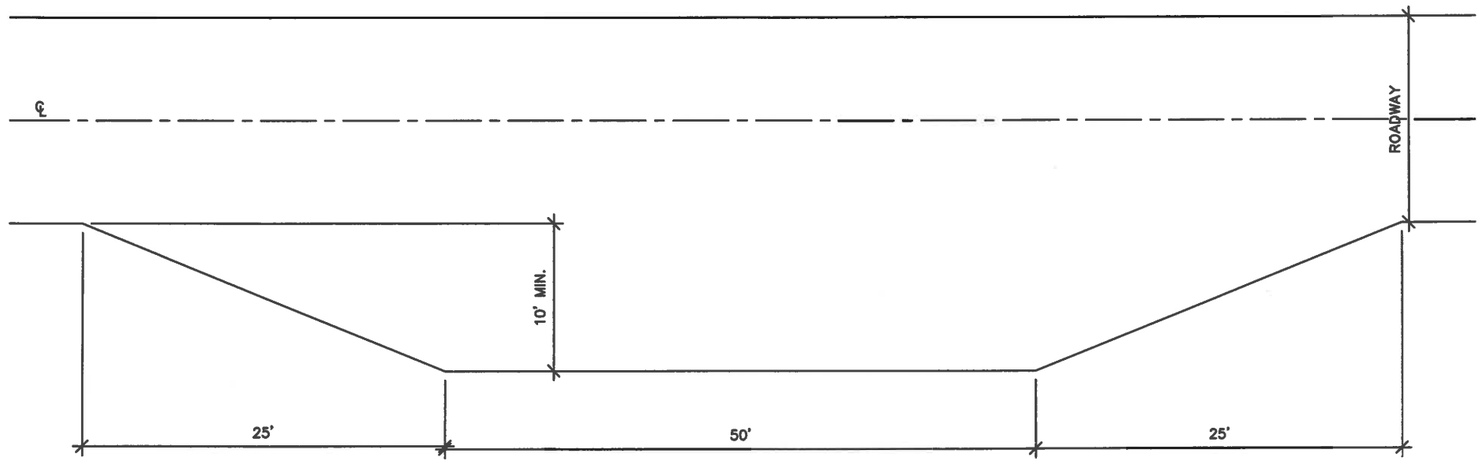
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FORESTRY — STATE OF ALASKA

ROADS, INFRASTRUCTURE AND BRIDGES SECTION

CULVERT DETAILS

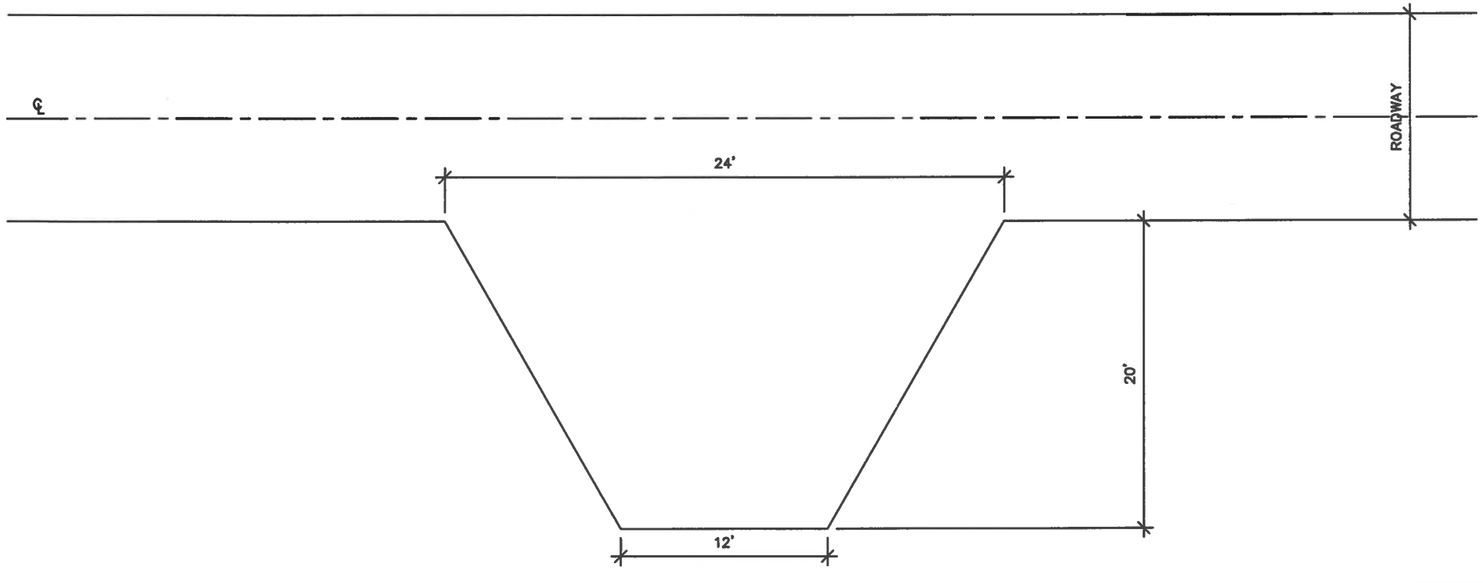
PREPARED: JDM
DRAWN: JDM
REVIEWED: SRA
DATE: 03/04/15

SHEET
E-01.00



TURNOUT DETAIL

NOT TO SCALE

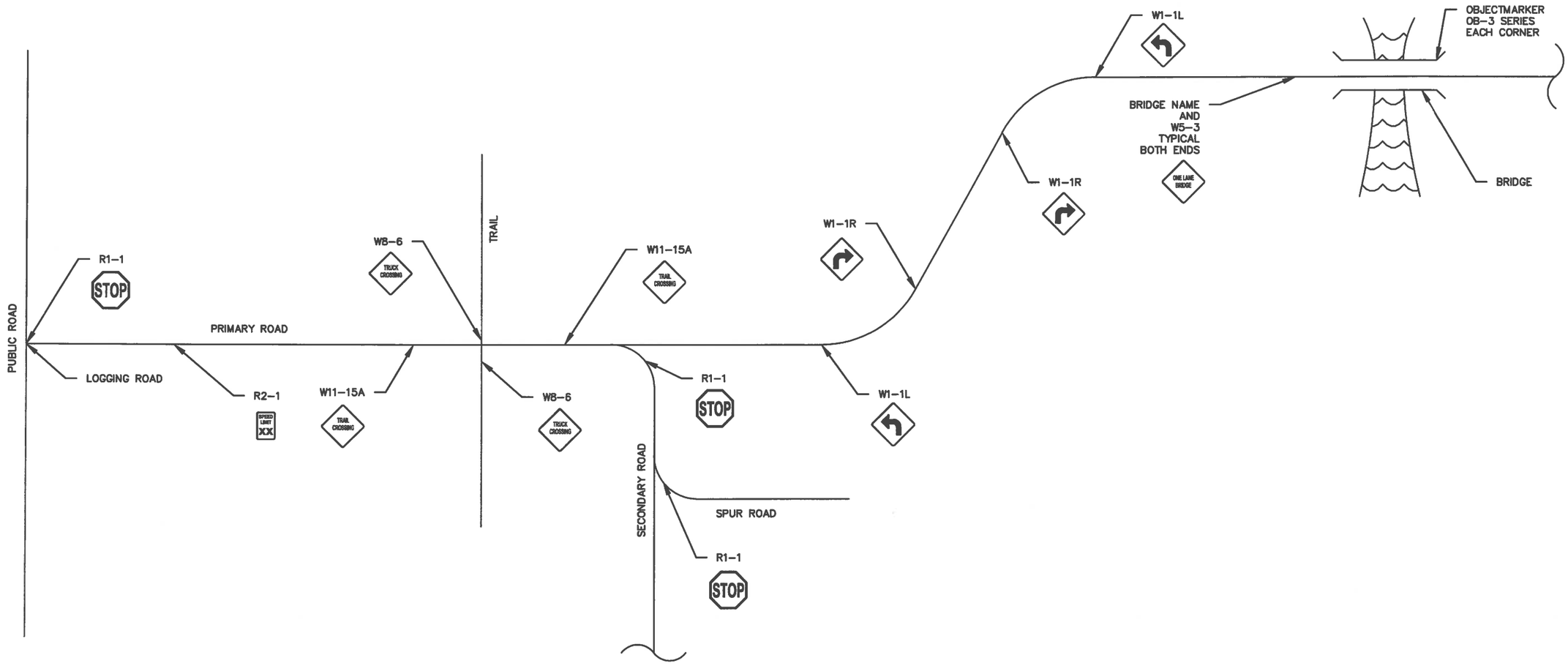


TURNAROUND DETAIL

NOT TO SCALE

Revisions			
No.	Date	Description	By

DEPARTMENT OF NATURAL RESOURCES DIVISION OF FORESTRY STATE OF ALASKA	ROADS, INFRASTRUCTURE AND BRIDGES SECTION		ROADWAY DETAILS	PREPARED: JDM DRAWN: JDM REVIEWED: SRA DATE: 03/04/15	SHEET E-02.00



NOTES:

1. PLACE D10-1 MILE MARKERS EVERY MILE.
2. DIAGRAM ABOVE SHOWS APPROXIMATE PLACEMENT OF SIGNS. PROJECT ENGINEER TO DETERMINE FINAL PLACEMENT BASED ON SITE CONDITIONS.
3. SEE SHEET S-01.00 FOR ADDITIONAL BRIDGE SIGNS.

Revisions			
No.	Date	Description	By
1	11/8/2015		GS

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FORESTRY STATE OF ALASKA

ROADS, INFRASTRUCTURE AND BRIDGES SECTION

TYPICAL SIGN PLACEMENT

PREPARED: JDM
DRAWN: JDM
REVIEWED: SRA
DATE: 03/04/15

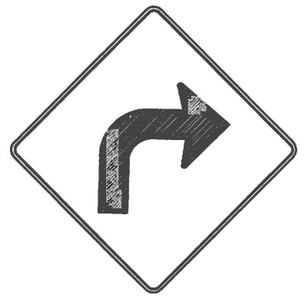
SHEET H-01.00

R1-1 (MUTCD)
24" X 24"
18"X18"

R2-1 (MUTCD)
18"W X 24"H

D10-1 (MUTCD)
10" X 18"

W1-1L (MUTCD)
24" X 24"
18"X18"



W1-1R (MUTCD)
24" X 24"
18"X18"

W5-3 (MUTCD)
24" X 24"

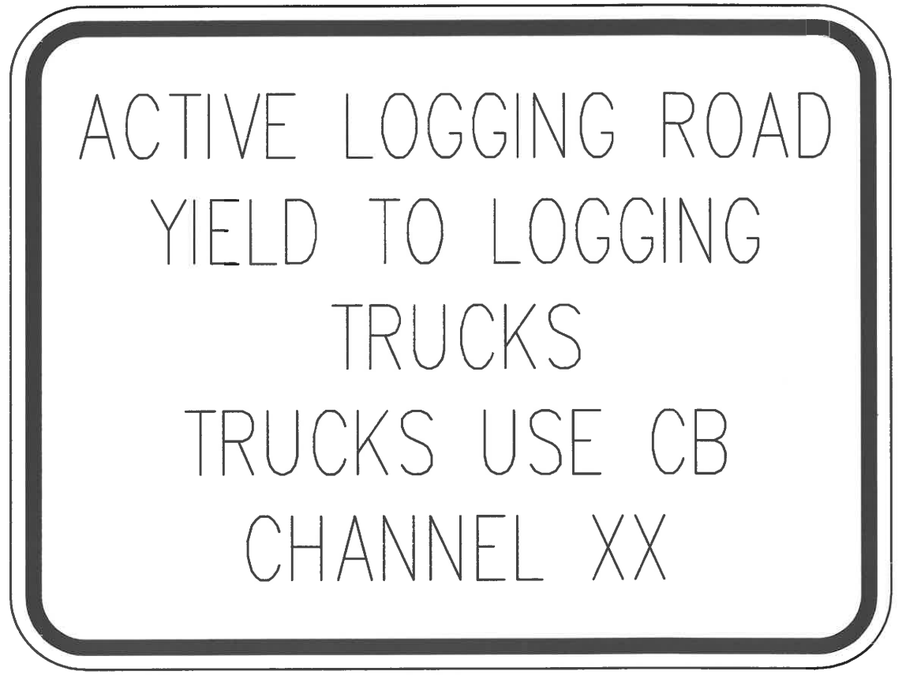
W16-9P (MUTCD)
24" X 18"

W11-15A (MUTCD)
24" X 24"

W8-6 (MUTCD)
24" X 24"

OM-3L (MUTCD)
12" X 36"

OM-3L (MUTCD)
12" X 36"



72"X54" BLACK MESSAGE AND BORDER ON WHITE BACKGROUND (CUSTOM)

Revisions			
No.	Date	Description	By

NOTE: FOR SIGN FRAMING AND POST SPACING SEE ALASKA DEPARTMENT OF TRANSPORTATION STANDARD DETAIL S-00.11

DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FORESTRY — STATE OF ALASKA

ROADS, INFRASTRUCTURE AND BRIDGES SECTION

SIGN DETAILS

PREPARED: JDM
DRAWN: JDM
REVIEWED: SRA
DATE: 03/04/15

SHEET
H-02.00

BRIDGE PROJECT NOTES

DESIGN OF PREFABRICATED STEEL BRIDGE

THE DESIGN OF THE PREFABRICATED STEEL BRIDGE SHALL BE IN ACCORDANCE WITH THE LATEST EDITION OF THE "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS". WHEN USING THE "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS", ALL OCCURRENCES OF THE WORD "SHOULD" SHALL BE REPLACED WITH THE WORD "SHALL". ALL DRAWINGS, SPECIFICATIONS, AND PROJECT SPECIFIC CALCULATIONS SHALL BE SIGNED AND SEALED BY A PROFESSIONAL ENGINEER LICENSED IN THE STATE OF ALASKA.

DO NOT PROVIDE A FRACTURE CRITICAL OR NON-REDUNDANT BRIDGE SUCH AS A TRUSS OR TWO-GIRDER BRIDGE SYSTEM.

THE BRIDGE SHALL BE CONFIGURED TO BE TRANSPORTED TO A SITE BY STANDARD HIGHWAY LOG TRUCK OR "LOW BOY" IN MULTIPLE SECTIONS. APPROPRIATE LIFTING POINTS SHALL BE INTEGRATED INTO THE DESIGN TO ALLOW TYPICAL SLINGING AND HANDLING METHODS FOR INSTALLATION AND TRANSPORTATION TO THE SITE.

BRIDGE RAILING POSTS SHALL TIE TO THE DECK STRUCTURE (DECK OR DECK BEAMS) OF THE BRIDGE, NOT THE BRIDGE GIRDERS. CRASH WORTHY RAIL SYSTEMS DESIGNED TO THE LRFD TEST LEVEL 2 STANDARD IS ACCEPTABLE FOR THIS SUBMITTAL. BRIDGE RAILING SHALL BE HOT DIPPED GALVANIZED THRIE BEAM GUARDRAIL MEETING AASHTO HIGHWAY AND BRIDGE SPECIFICATIONS. GUARDRAIL SHALL BE COMPATIBLE WITH DOT&PF STANDARD THRIE BEAM CONFIGURATIONS.

CLEARLY SPECIFY RELEVANT INFORMATION SUCH AS MEMBER SIZES, GEOMETRY, BEARING REACTIONS, DESIGN LOADS, MATERIAL PROPERTIES AND OTHER DESIGN INFORMATION ON THE DRAWINGS.

DESIGN LOADINGS FOR THE BRIDGE WILL CONFORM TO THE FOLLOWING:

A. DEAD LOAD- USE UNIT WEIGHTS AS DEFINED IN THE "AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS" MOST RECENT EDITION WITH INTERIM REVISIONS.

B. VEHICULAR LIVE LOAD - USE THE OPERATING STRESS LEVEL OF THE AASHTO BRIDGE MAINTENANCE MANUAL FOR HL-93, AND USP5 LOADS FOR U80, U102 AND L90 LOADING.

C. WIND LOAD - 100 MPH PER AASHTO REQUIREMENTS.

D. FATIGUE - USE A SINGLE LANE AVERAGE DAILY TRUCK TRAFFIC (ADTT) OF 20 FOR DESIGN.

E. SEISMIC - AS DEFINED IN THE "AASHTO GUIDE SPECIFICATIONS FOR LRFD SEISMIC BRIDGE DESIGN".

F. ERECTION - USE A CONSTRUCTION LOAD FACTOR OF NOT LESS THAN 1.25 FOR ALL LOADS THAT ARE ESSENTIALLY STATIC AND NOT LESS THAN 1.50 FOR ALL OTHER LOADS.

G. THERE IS NO DEFLECTION CRITERIA.

MATERIALS

STEEL.

CONSTRUCT PREFABRICATED STEEL BRIDGE FROM ASTM A709 GRADE 50T3 OR ASTM A709 GRADE 36T3 PLATE AND STRUCTURAL SHAPES. ASTM A572 STEEL MAY BE SUBSTITUTED FOR A709 IF:

IT MEETS THE CHARPY V-NOTCH, ZONE 3 TEST REQUIREMENTS AS SPECIFIED IN ASTM A709.

FABRICATION CONFORMS TO THE MOST RECENT EDITION OF THE ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5 WHEN WELDING NEW STEEL BRIDGE GIRDERS, BEAMS AND STRINGERS.

HOT DIP GALVANIZE ALL STRUCTURAL STEEL SHAPES, PLATES, AND BARS IN ACCORDANCE WITH AASHTO M 111. REPAIR DAMAGE TO GALVANIZED COATINGS ACCORDING TO ASTM A780 OR AASHTO M 36.

FASTENERS. ASTM A325. GALVANIZED PER AASHTO M 232.

DECKING.

IF TIMBER DECKING IS USED, BRIDGE SHALL HAVE A PRESSURE TREATED DECK OF AT LEAST 4X12 TIMBERS WITH AN ADDITIONAL UNTREATED RUNNING/WEAR SURFACE OF 3X12 UNTREATED DOUG-FIR. USE GRADE 1 OR BETTER FOR DECKING AND GRADE #2 FOR RUNNING PLANKS.

UNLESS OTHERWISE APPROVED BY THE STATE, ALL TREATED WOOD SHALL BE NEW PRESSURE TREATED PACIFIC DOUG-FIR TIMBERS OR EQUIVALENT MEETING THE DOT & PF STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION (SSHC) AND THE AMERICAN WOOD PRESERVERS' ASSOCIATION (AWPA) USE CATEGORY OF UC4B. PENTA BASED PRODUCTS WILL NOT BE ACCEPTED. FABRICATE TIMBER (INCLUDING ALL CUTTING, SHAPING, AND BORING) BEFORE TREATMENT. CAREFULLY TRIM ALL ABRASIONS AND TREAT ALL CUTS IN TREATED MEMBERS ACCORDING TO AWPA STANDARD M 4. BEFORE DRIVING BOLTS, TREAT ALL HOLES BORED AFTER TREATMENT ACCORDING TO THE APPLICABLE AWPA STANDARDS. PLUG REMAINING HOLES WITH TREATED PLUGS.

MATERIALS (CONT.)

CONCRETE.

USE NON-SHRINK, NON-CORROSIVE, NON-METALLIC, CEMENT BASED GROUT MEETING ASTM C-1107, GRADE C. MEET THE REQUIREMENTS OF ASTM 320. DEVELOP A COMPRESSIVE STRENGTH OF 9,000 PSI.

ALL CONCRETE SHALL CONFORM TO DOT & PF CLASS A CONCRETE WITH A MINIMUM COMPRESSIVE STRENGTH OF 4,000 PSI AT 28 DAYS.

ALL REINFORCING SHALL BE ASTM A 615, GRADE 60.

STRUCTURAL TIMBERS.

APPLY PRESERVATIVE TO ALL STRUCTURAL TIMBER THAT IS EXPOSED TO WEATHER, WATER, OR SOIL. USE THE PRESERVATIVE AND TREATMENT PROCESS OF AASHTO M133 AND "BEST MANAGEMENT PRACTICES FOR THE USE OF TREATED WOOD IN AQUATIC ENVIRONMENTS (BMPs)", PUBLISHED BY THE WESTERN WOOD PRESERVER'S INSTITUTE. USE COPPER NAPTHENATE WITH A RETENTION OF PRESERVATION CONFORMING TO AWPA USE CATEGORY 4B FOR HIGHWAYS AND BRIDGES.

WELDING.

PERFORM ALL WELDING AND NONDESTRUCTIVE EXAMINATION (NDE) AS SPECIFIED OR SHOWN ON THE PLANS. CONFORM TO THE MOST RECENT EDITION OF THE ANSI/AASHTO/AWS BRIDGE WELDING CODE D1.5 WHEN WELDING NEW STEEL BRIDGE GIRDERS, BEAM AND STRINGERS. CONFORM TO THE MOST RECENT EDITION OF THE STRUCTURAL WELDING CODE AWS D1.1 WHEN WELDING ALL OTHER STEEL STRUCTURES.

AT LEAST 30 DAYS PRIOR TO WELDING, SUBMIT FOR APPROVAL A WELDING PLAN STAMPED AND SIGNED BY THE CERTIFIED WELDING INSPECTOR (CWI) RESPONSIBLE FOR THE QUALITY CONTROL (QC) AND CONSISTING OF THE FOLLOWING DOCUMENTS:

A. QUALITY CONTROL PERSONNEL QUALIFICATIONS INCLUDING CWI NUMBER,

B. WELDING PROCEDURE SPECIFICATIONS (WPS) USING FORMS IN AWS D1.1, SAMPLE WELDING FORMS,

C. PROCEDURE QUALIFICATION RECORDS (PQR), WHEN APPLICABLE, USING FORMS IN AWS D1.1, SAMPLE WELDING FORMS,

D. WELDER PERFORMANCE QUALIFICATION RECORDS (WPQR) USING FORMS IN AWS D1.1, SAMPLE WELDING FORMS WITH DOCUMENTATION OF CURRENT WELDER CERTIFICATION,

E. SAMPLE DAILY INSPECTION SHEET, AND

F. TYPE AND EXTENT OF NDE TO BE CONDUCTED, AS REQUIRED IN THE SSHC SECTION 504.

USING A CWI, PERFORM ALL QUALITY CONTROL INSPECTION NECESSARY TO ENSURE THAT THE MATERIALS AND WORKMANSHIP MEET THE REQUIREMENTS OF THE CONTRACT DOCUMENTS.

CORRECT ALL DEFICIENCIES IN MATERIALS AND WORKMANSHIP REVEALED BY QUALITY CONTROL AND QUALITY ASSURANCE REPRESENTATIVES DESIGNATED BY THE STATE.

FURNISH ALL COMPLETED QUALITY CONTROL INSPECTION DOCUMENTS TO THE ENGINEER OR WHEN SPECIFIED, THE QUALITY ASSURANCE REPRESENTATIVE DESIGNATED BY THE STATE.

DO NOT WELD OR TACK BRACKETS, CLIPS, SHIPPING DEVICES OR OTHER MATERIAL NOT REQUIRED BY THE CONTRACT DOCUMENTS TO THE PERMANENT STRUCTURE, UNLESS SHOWN ON THE WORKING DRAWINGS AND APPROVED BY THE ENGINEER.

SITE SPECIFIC NOTES

EACH END OF THE BRIDGE MUST BE SECURED TO THE ABUTMENT STRUCTURE.

AN EARTH EMBANKMENT CONSTRUCTED FOR USE AS A BRIDGE APPROACH MUST BE PROTECTED FROM EROSION BY USING PLANTED OR SEEDED GROUND COVER, BULKHEADS, ROCK RIPRAP, RETAINING WALLS, OR OTHER EQUALLY EFFECTIVE MEANS.

A BRIDGE MUST BE INSTALLED IN SUCH A WAY AS TO MINIMIZE DISTURBANCE TO THE BED AND BANKS OF A STREAM. NO PART OF THE SUPERSTRUCTURE MAY BE BELOW THE HIGH WATER MARK OF THE STREAM OR OBSTRUCTING THE STREAM'S FLOW BETWEEN ORDINARY HIGH WATER.

EQUIPMENT STREAM CROSSINGS ARE NOT AUTHORIZED WITHOUT PRIOR SPECIFIC STATE APPROVAL. THE PURCHASER/CONTRACTOR MUST SUBMIT WRITTEN PLANS IF CROSSING OF OPEN (UNFROZEN WATERS) IS REQUIRED FOR ROAD CONSTRUCTION.

GENERAL NOTES.

THE BIDDER WILL HAVE THE STRUCTURE DESIGNED BY A PROFESSIONAL ENGINEER REGISTERED IN THE STATE OF ALASKA. PLANS OF THE PROPOSED STRUCTURE WILL BE SUBMITTED AND BE SUBJECT TO APPROVAL OF THE DOF CONTRACTING OFFICER OR HIS DESIGNEE BEFORE FINAL ACCEPTANCE.

PROVIDE AND SECURE A NAMEPLATE TO THE STRUCTURE INDICATING THE BRIDGE MANUFACTURER'S NAME, MAXIMUM LOAD LIMITS, AND YEAR OF FABRICATION.

PROVIDE AN INVENTORY AND OPERATING LOAD RATINGS OF THE BRIDGE IN THE PLAN SUBMITTALS ACCORDING TO THE MOST RECENT VERSION, INCLUDING INTERIM VERSION, OF THE AASHTO MANUAL FOR BRIDGE EVALUATION (MBE). LOAD RATE STEEL AND CONCRETE ELEMENTS USING THE LOAD AND RESISTANCE FACTOR RATING (LRFR) METHOD. LOAD RATE TIMBER ELEMENTS USING THE ALLOWABLE STRESS RATING (ASR) METHOD AND LOAD AND RESISTANCE FACTOR RATING (LRFR) METHODS.

THE BRIDGE SHALL BE DELIVERED WITH ADEQUATE BLOCKING TO KEEP THE STRUCTURE 6 INCHES OFF THE GROUND, LEVEL AND WELL SUPPORTED UNTIL IT IS INSTALLED.

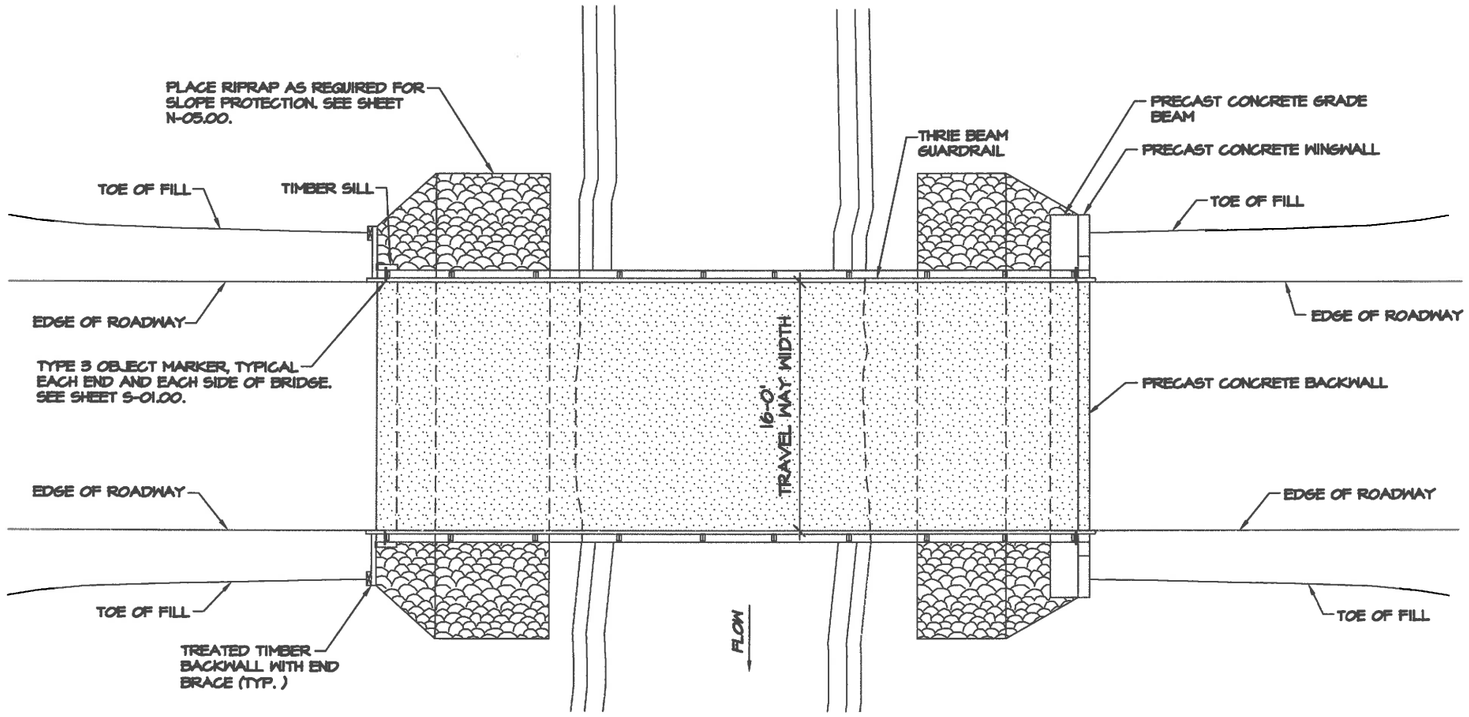
FOUNDATION NOTES

FOUNDATION DESIGN AND DETAILS ASSUME SUBSTRUCTURE UNITS WILL BE PLACED ON COMPETENT SOIL OR BEDROCK CAPABLE OF ACHIEVING A MINIMUM BEARING PRESSURE OF 1500 PSF. IF THIS CRITERIA CANNOT BE MET, CONSULT WITH A LICENSED PROFESSIONAL ENGINEER FOR FURTHER GUIDANCE.

FABRICATION AND INSTALLATION OF GEOCELL FOUNDATION STABILIZATION UNITS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION 611.

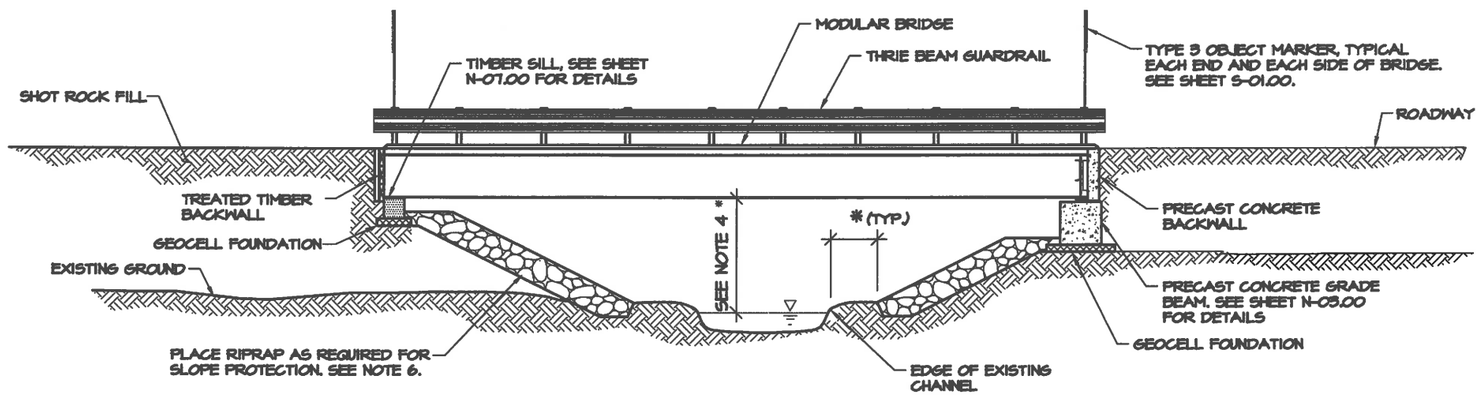
FABRICATION AND INSTALLATION OF WELDED WIRE RETAINING WALL SYSTEMS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION 516.

FABRICATION AND INSTALLATION OF BIN WALL ABUTMENT SYSTEMS SHALL BE IN ACCORDANCE WITH SPECIAL PROVISION 517.



NOTE:
THIS DRAWING SHOWS A TYPICAL INSTALLATION.

PLAN VIEW



ELEVATION

GENERAL NOTES:

1. DRAWING IS APPLICABLE FOR SINGLE LANE BRIDGE ONLY, UNLESS OTHERWISE NOTED.
2. SEE SHEET N-01.00 FOR FOUNDATION PARAMETERS.
3. SEE SHEET N-06.00 FOR SILL MATERIAL NOTES.
4. PROVIDE 5 FT. MIN CLEARANCE FROM AVERAGE HIGH WATER MARK FOR ICE AND DEBRIS PASSAGE.
5. WHERE STRUCTURAL EXCAVATION IS REQUIRED, REFER TO DOT & PF SPECIFICATION 205.
6. SEE SHEET N-05.00 FOR RIPRAP DETAILS AND NOTES.

* 3'-0" FEET MIN. (UNLESS OTHERWISE SPECIFIED BY ENGINEER)

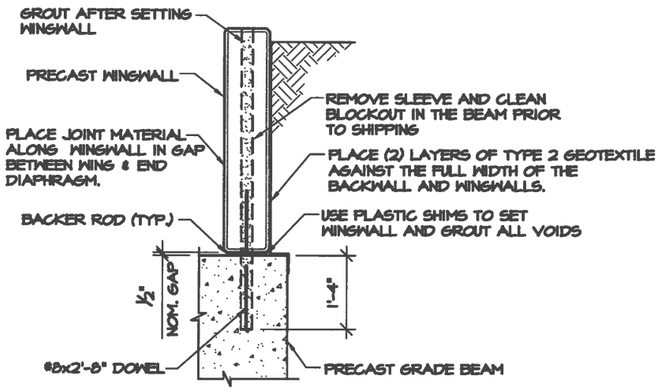
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF FORESTRY
STATE OF ALASKA

ROADS, INFRASTRUCTURE AND BRIDGES SECTION

STANDARD PRECAST CONCRETE AND TIMBER ABUTMENTS

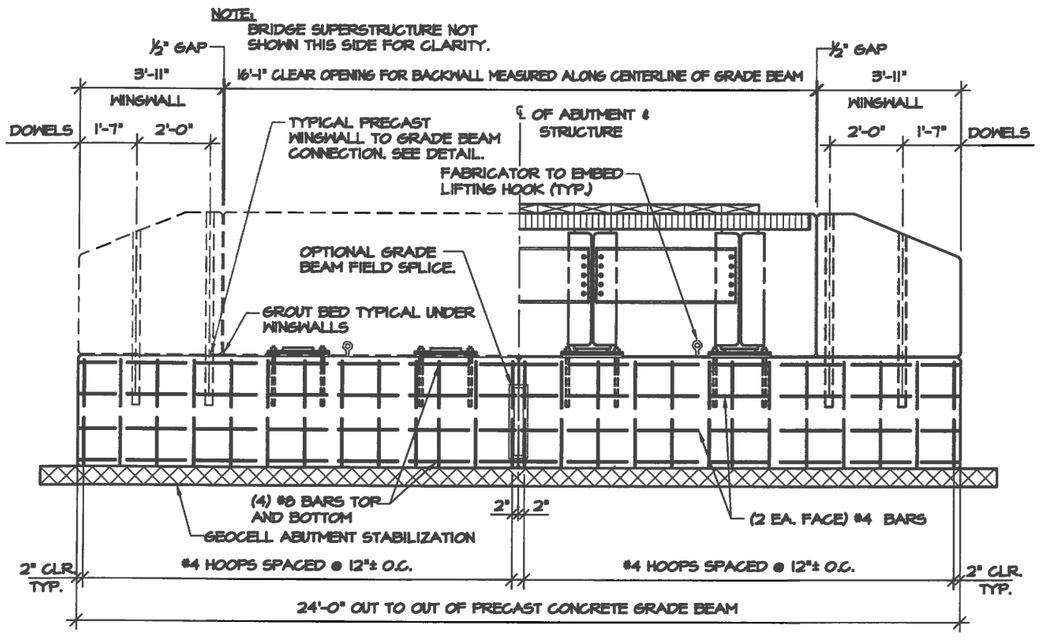
PREPARED: SM
DRAWN: DNM
REVIEWED: MJM
DATE: 01/22/2015

SHEET
N-02.00



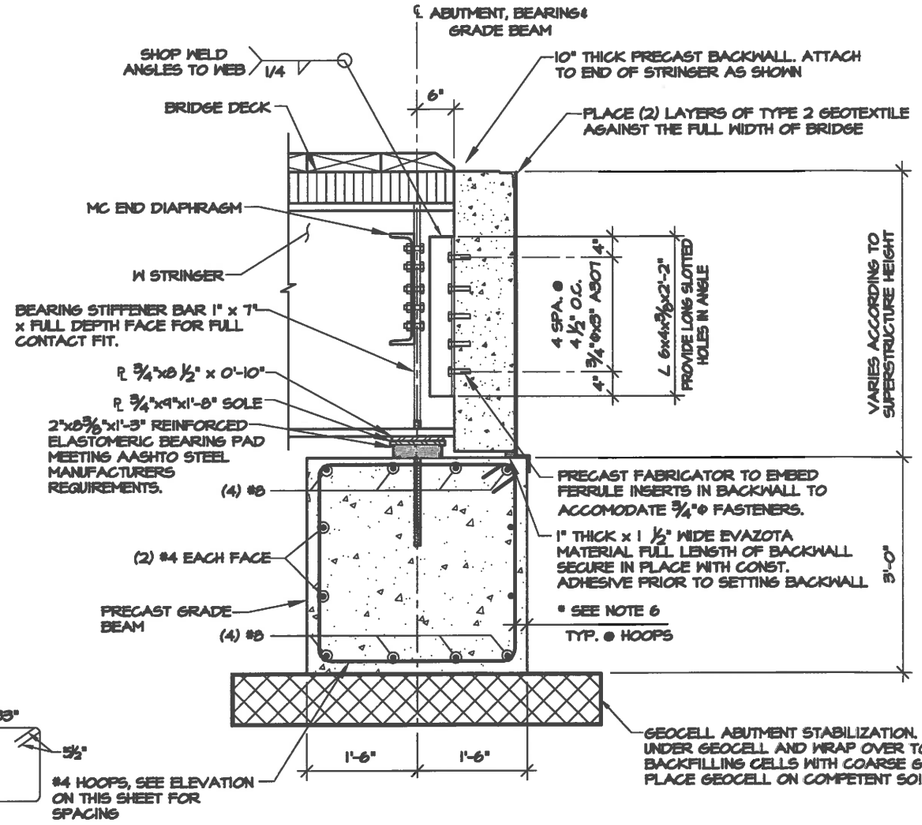
WINGWALL CONNECTION DETAIL

SCALE : 3/8"=1'-0"

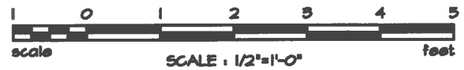


ABUTMENT ELEVATION

SCALE : 1/4"=1'-0"



ABUTMENT SECTION



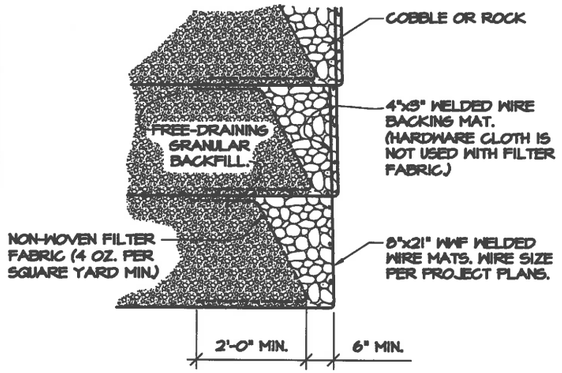
SCALE : 1/2"=1'-0"

GENERAL NOTES:

1. ALL PRECAST CONCRETE SHALL BE CLASS A CONCRETE MEETING DOT & PF STANDARD SPECIFICATION 501 WITH A MINIMUM F'C = 4000 PSI AT 28 DAYS.
2. ALL REINFORCING STEEL SHALL BE THE DEFORMED TYPE MEETING AASHTO M31 (ASTM A615), GRADE 60. BENDING AND SPLICING OF REINFORCEMENT SHALL BE IN ACCORDANCE WITH ACI 318.
3. ALL BOLTS SHALL TO BE ASTM A325, GALVANIZED IN ACCORDANCE WITH AASHTO M232.
4. ALL METAL COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
5. GRADE BEAM AND WINGWALL LENGTH SHALL BE EXTENDED TO MEET SITE CONDITIONS AND RETAIN ROADWAY APPROACH FILL.
6. PROVIDE A MINIMUM OF 2" OF CONCRETE COVER OVER REINFORCING STEEL.

DEPARTMENT OF NATURAL RESOURCES DIVISION OF FORESTRY — STATE OF ALASKA	ROADS, INFRASTRUCTURE AND BRIDGES SECTION		STANDARD PRECAST CONCRETE ABUTMENT	PREPARED: SM DRAWN: DNM REVIEWED: MJM DATE: 01/22/2015

SHEET N-03.00

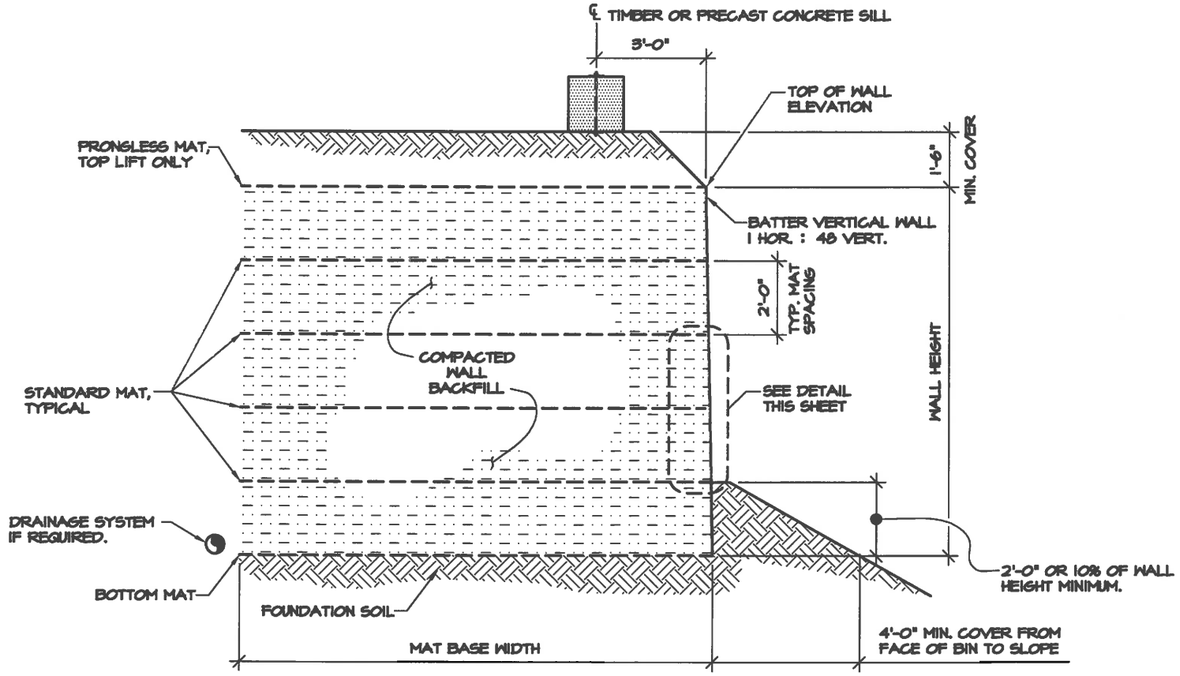


WELDED WIRE ROCK FACING DETAIL

SCALE : 3/8"=1'-0"

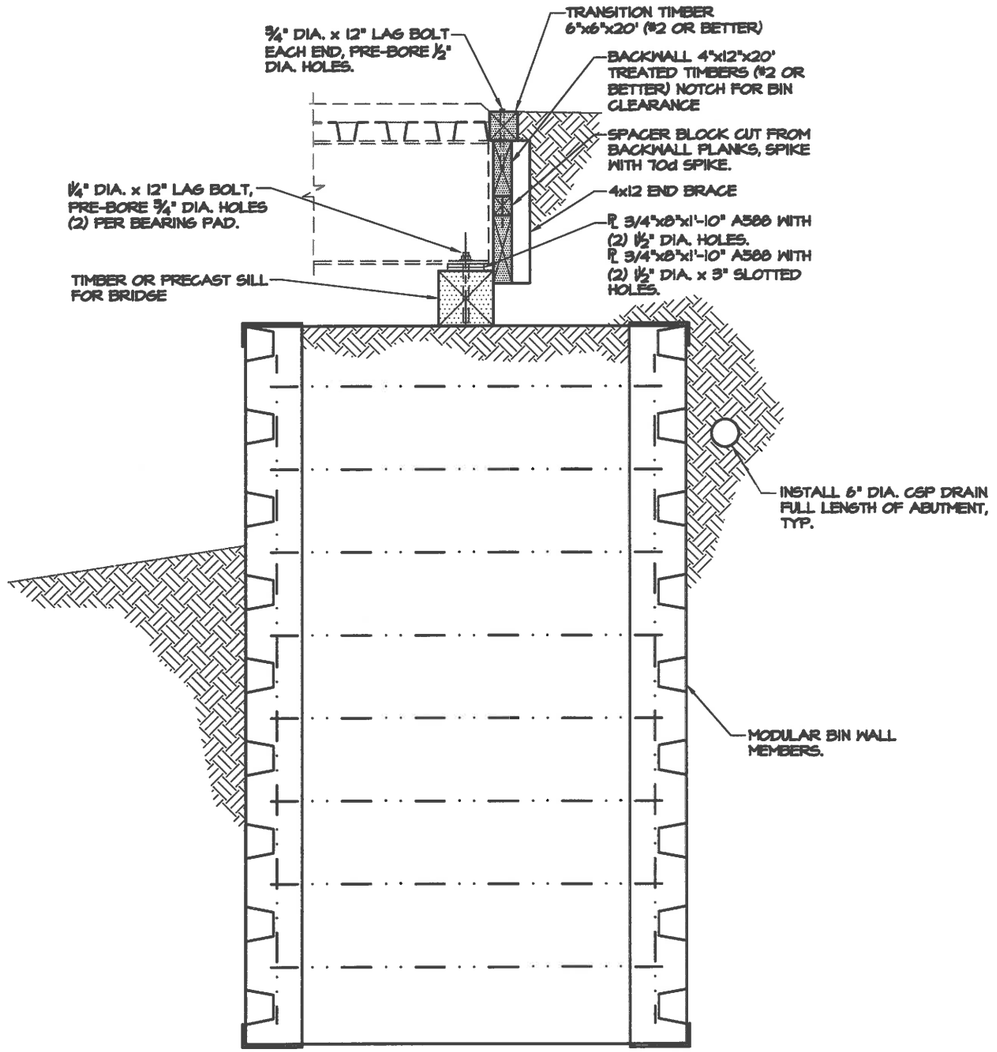
GENERAL NOTES:

1. WELDED WIRE RETAINING WALL SYSTEMS SHALL BE CONSTRUCTED IN ACCORDANCE WITH THE MANUFACTURER'S GUIDELINES.
2. WELDED WIRE RETAINING WALL DETAILS SHALL BE USED THAT MINIMIZE IMPACTS ON WATERWAYS BY UTILIZING FILTER FABRIC OR HARDWARE CLOTH TO PROTECT FROM INFILTRATION OF FINES AND BY PROVIDING ADEQUATE DRAINAGE BEHIND THE STRUCTURE.
3. ALL METAL COMPONENTS SHALL BE GALVANIZED IN ACCORDANCE WITH AASHTO M111.
4. INSTALL BIN WALL RETAINING ABUTMENT SYSTEM PER MANUFACTURER'S TYPICAL INSTALLATION. FILL INTERIOR OF BIN WITH SELECT GRANULAR BACKFILL MATERIAL 703-2.22 COMPACTED TO 95% DENSITY OR ENGINEER'S APPROVAL. BACKFILL AND COMPACT ADJACENT TO BIN WITH BACKFILL MATERIAL 703-2.15.
5. EROSION CONTROL PLAN IS REQUIRED.



ELEVATION - WELDED WIRE RETAINING WALL FOUNDATION

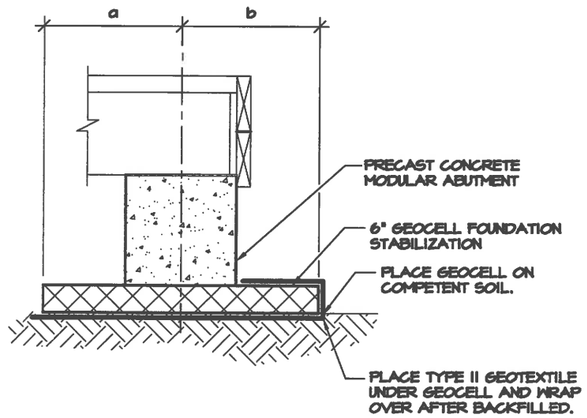
SCALE : 1/4"=1'-0"



SECTION MODULAR BIN WALL ABUTMENT

SCALE : 3/8"=1'-0"

DEPARTMENT OF NATURAL RESOURCES DIVISION OF FORESTRY — STATE OF ALASKA	ROADS, INFRASTRUCTURE AND BRIDGES SECTION		STANDARD MODULAR BIN AND WELDED WIRE ABUTMENT DETAILS	PREPARED: SM DRAWN: DNM REVIEWED: MJM DATE: 01/22/2015	SHEET N-04.00



GEOCELL SCHEDULE			
STRUCTURE	SPAN	a	b
CONCRETE ABUTMENT	UP TO 50 FT.	4'-3"	2'-6"
	UP TO 90 FT.	5'-6"	4'-6"

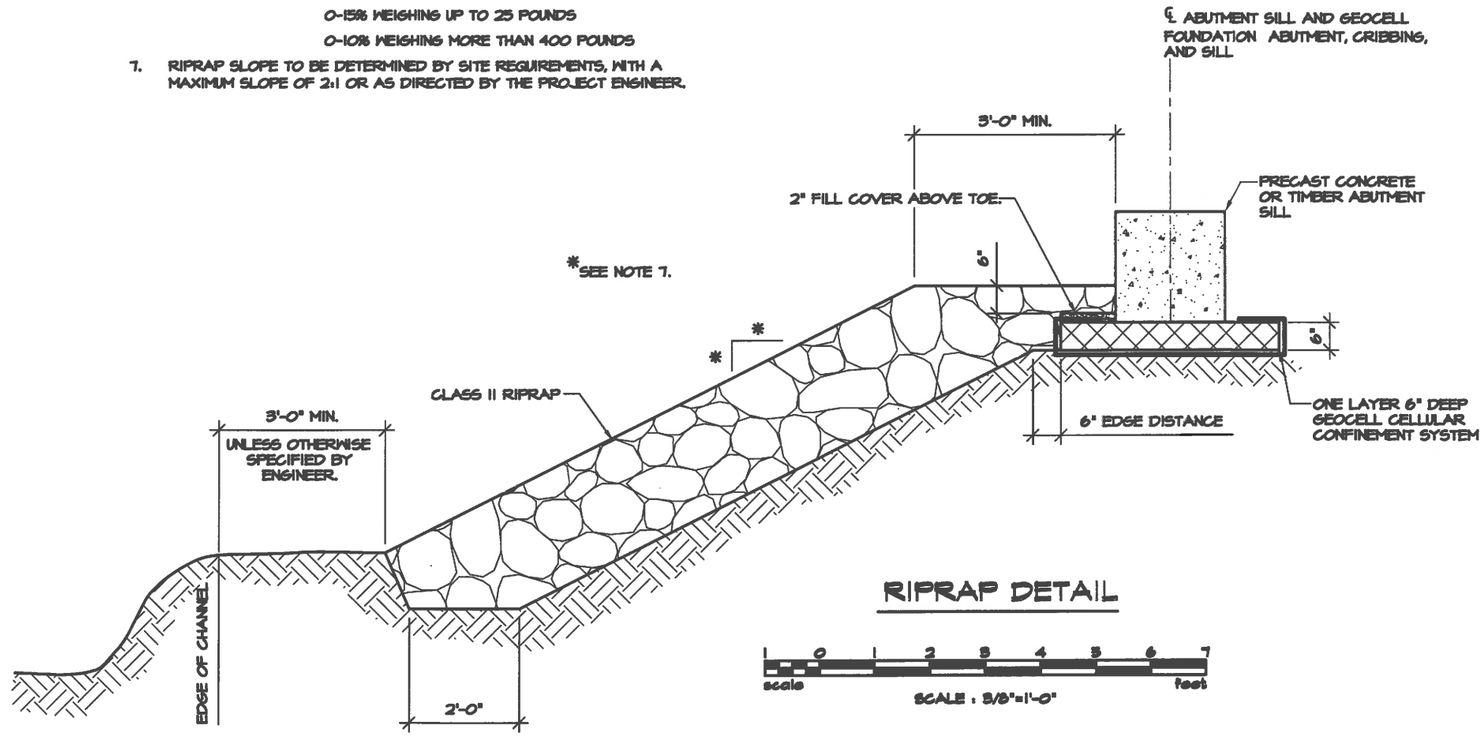
GEOCELL DETAIL

GENERAL NOTES:

1. SEE SHEET N-01.00 FOR FOUNDATION PARAMETERS.
2. ALL GEOTEXTILE SHALL BE TYPE II UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.
3. GEOTEXTILE SHALL BE JOINED BY OVERLAPPING A MINIMUM OF 18 INCHES (UNLESS OTHERWISE SPECIFIED) AND SECURED AGAINST UNDERLYING FOUNDATION MATERIAL USING PINS APPROVED AND PROVIDED BY THE GEOTEXTILE MANUFACTURER.
4. GEOTEXTILE BENEATH RIPRAP SHALL BE PLACED WITH A MINIMUM OVERLAP OF 24 INCHES.
5. SUBGRADE SURFACES ON WHICH FABRIC IS PLACED SHALL BE REASONABLY SMOOTH AND FREE OF ROCKS, CLODS, ROOTS OR OTHER OBJECTS WHICH COULD PUNCTURE THE FABRIC.
6. ALL RIPRAP SHALL BE CLASS II RIPRAP CONFORMING TO THE FOLLOWING CRITERIA, UNLESS OTHERWISE SPECIFIED BY THE ENGINEER.

   CLASS II 50-100% WEIGHING 200 POUNDS OR MORE.
   0-15% WEIGHING UP TO 25 POUNDS
   0-10% WEIGHING MORE THAN 400 POUNDS

7. RIPRAP SLOPE TO BE DETERMINED BY SITE REQUIREMENTS, WITH A MAXIMUM SLOPE OF 2:1 OR AS DIRECTED BY THE PROJECT ENGINEER.



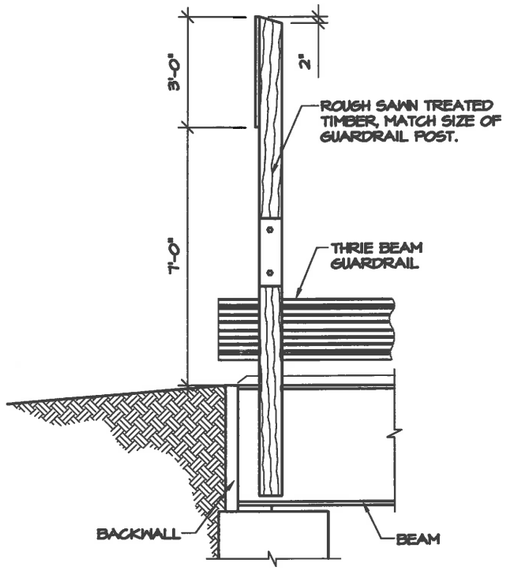
RIPRAP DETAIL

SCALE : 3/8"=1'-0"

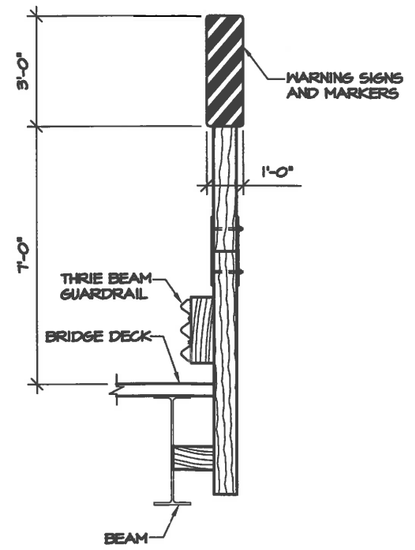
DEPARTMENT OF NATURAL RESOURCES DIVISION OF FORESTRY — STATE OF ALASKA	ROADS, INFRASTRUCTURE AND BRIDGES SECTION		MISCELLANEOUS STANDARD DETAILS	PREPARED: SM DRAWN: DNM REVIEWED: MJM DATE: 01/22/2015	SHEET N-05.00

GENERAL NOTES:

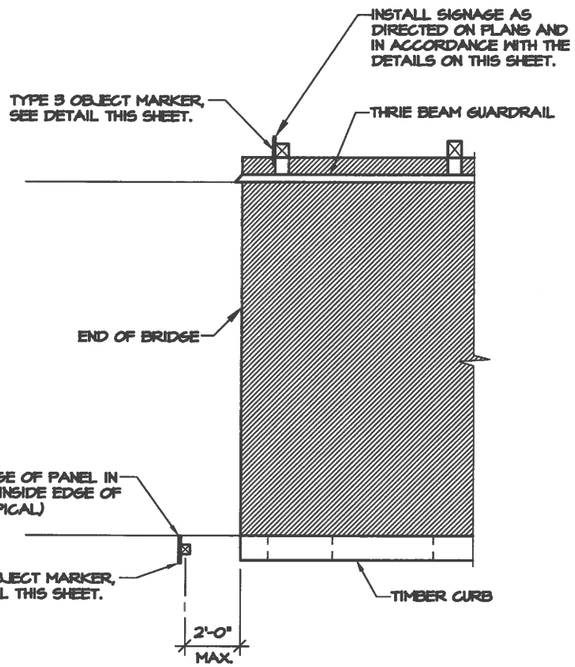
1. PROVIDE TYPE OM-3R OR OM-3L OBJECT MARKERS AT EACH CORNER OF THE BRIDGE, EITHER AT EACH ABUTMENT OR AT THE END OF APPROACH RAIL, AS SHOWN ON THE CONTRACT PLANS.
2. WHEN OBJECT MARKERS ARE TO BE PLACE ON TOP OF FINAL GUARDRAIL POST, USE SIMILAR MATERIAL TO SPLICE TO GUARDRAIL POST AS SHOWN ON DOT & PF STANDARD DRAWING S-20.10. OTHERWISE WOOD OR STEEL PERFORATED POSTS MAY BE USED.
3. PLYWOOD OR ALUMINUM AS SPECIFIED IN SECTION 730 OF THE DOT & PF STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION MAY BE USED FOR THE OBJECT MARKER SIGN BASE. IF ALUMINUM IS TO BE USED, PROVIDE A MINIMUM OF 0.080" THICK SHEET ALUMINUM.
4. ALWAYS PLACE INSIDE EDGE OF OBJECT MARKER IN LINE WITH EDGE OF OBSTRUCTION CLOSEST TO ROADWAY.
5. WHEN OBJECT MARKER IS AT THE EDGE OF FLARED APPROACH GUARDRAIL, ENSURE THAT BOTTOM OF OBJECT MARKER SIGN IS A MINIMUM OF 5 FOOT CLEAR ABOVE FINISHED ROADWAY EDGE.
6. IF APPROACH GUARDRAIL IS WARRANTED CONSULT "BARRIER GUIDE FOR LOW VOLUME AND LOW SPEED ROADS", PUBLICATION NO. FHWA-CFL/TD-05-004, FOR DESIGN OF NECESSARY CLEAR ZONE.
7. FOR EMBEDMENT LENGTH SEE DOT & PF STANDARD SHEET S-30.03.
8. ATTACH ALL OBJECT MARKER POSTS IN ACCORDANCE WITH DOT & PF STANDARD SHEET S-30.03.



SIDE ELEVATION

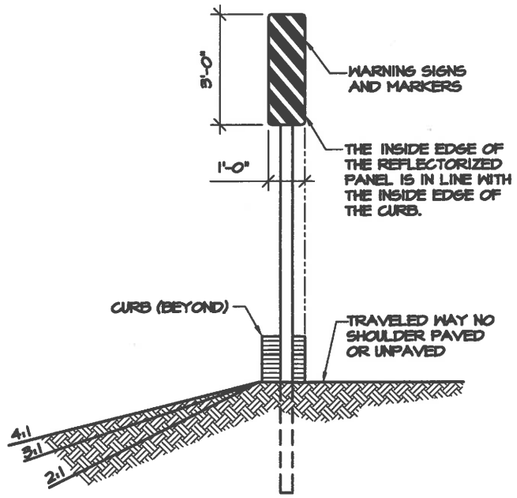


FRONT ELEVATION

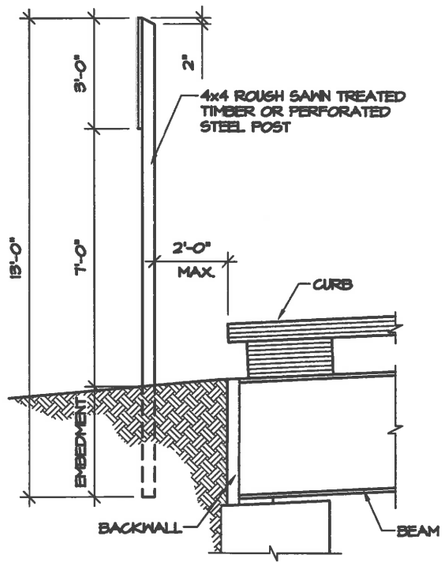


TYPICAL OBJECT MARKER INSTALLATION

NOT TO SCALE



FRONT ELEVATION



SIDE ELEVATION

OBJECT MARKER TYPE 3 INSTALLATION DETAIL

NOT TO SCALE

DEPARTMENT OF NATURAL RESOURCES DIVISION OF FORESTRY — STATE OF ALASKA	ROADS, INFRASTRUCTURE AND BRIDGES SECTION		TRAFFIC CONTROL DETAILS	PREPARED: SM DRAWN: DNM REVIEWED: MJM DATE: 01/22/2015	SHEET S-01.00